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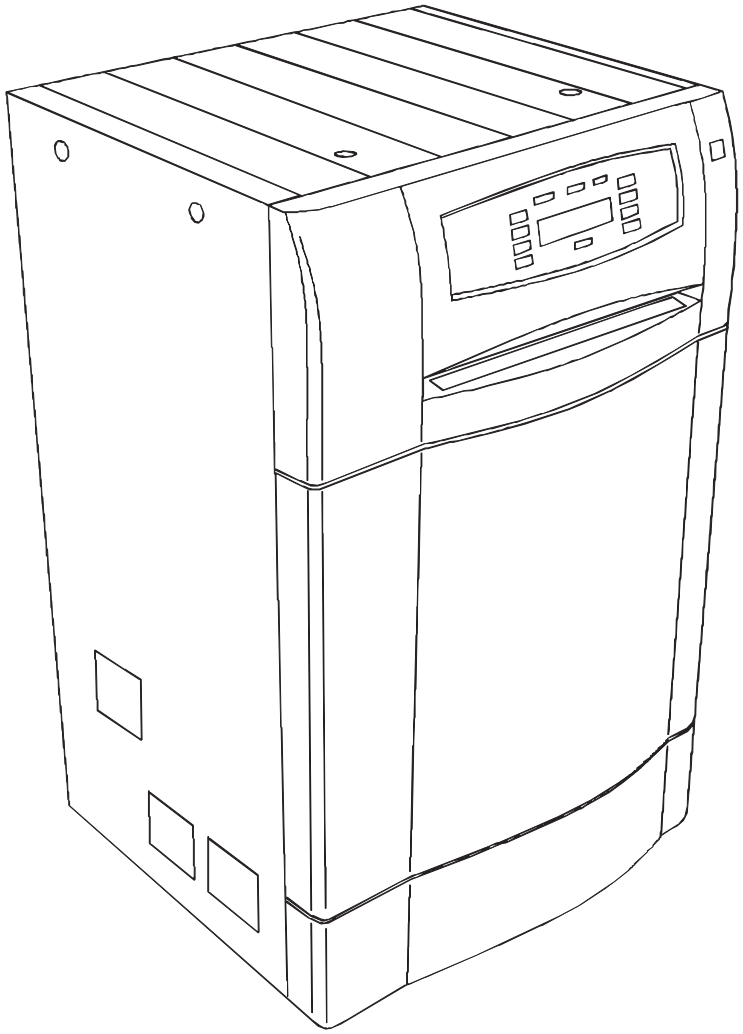
DIAGNOSTICS MANUAL

for the

KODAK MULTILOADER 700 and

KODAK MULTILOADER 700 PLUS



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CHAPTER 1

ERROR CODES

ERROR CODE (EC)

If a problem occurs an ERROR CODE is generated. This code is only displayed, if it is assumed that the customer cannot solve the problem.The ERROR CODE does not appear in the STATUS REPORT.

ERROR FLAG (EF)

In case of a problem the corresponding ERROR FLAG contains a value other than ZERO. The ERROR FLAGS are shown in line 7 of SCREEN 1 and 2 after the SERVICE MODE is entered. For detailed information see topic “EXPLANATION OF ELAPSE TIMES AND ERROR FLAGS.

ELAPSE TIMES (ET)

In case of a problem a time other than ZERO is written into the corresponding NO-GOOD ELAPSE TIME. The ELAPSE TIMES are shown on SCREEN 1 and 2 after the SERVICE MODE is entered. For detailed information see topic “EXPLANATION OF ELAPSE TIMES AND ERROR FLAGS.

SERVICE CALL YES / NO (SC)

Some ERROR CODES are defined in the software as SERVICE CALL. It is assumed that such a problem cannot be solved by the customer.

- If YES, the MESSAGE TEXT is displayed together with the ERROR CODE.
- If NO, the MESSAGE TEXT is displayed without the ERROR CODE.

MESSAGE TEXT

In case of a problem the MESSAGE TEXT is displayed. It does not give the cause of the problem. If possible it contains hints for the OPERATOR what to do.

PROBLEM

This is a short problem description.

CAUSE

Various problems, which may have led to the error condition, are stated.

Note

Before starting TROUBLESHOOTING allways print SCREEN 1 and 2 and the STATUS REPORT.

EC	EF	ET	SC	MESSAGE	PROBLEM	CAUSE
11	Fi=1	Fi1	N	INSERT CASSETTE LATCH FIRST AND UPPERMOST	PRESSURE ROLLER Not lifted by CASSETTE	SWITCH S8(PRL) not actuated. Adjustment not correct.
12	Fi=2	Fi3	Y	*12* CASSETTE ENTRY PROBLEM	PRESSURE ROLLER not lifted by MOTOR M3	FUSE F3 blown. SWITCH S5 (PRU) defective. SWITCH S5 misadjusted. MOTOR M3 defective. CASSETTE CONTROL blocked.
13	Fi=3	Fi4	N	INSERT CASSETTE LATCH FIRST AND UPPERMOST	CASSETTE did not reach ENDSWITCH S13 (CES) and is ejected	SWITCH S13 (CES) misadjusted. CASSETTE SUPPORT to high. CASSETTE inserted at angle.
14	Fi=4	Fi7	N	CASSETTE CENTRING PROBLEM	CASSETTE not successfully centred after 2 attempts	FUSE F2 blown. MOTOR M2 defective. SWITCHES S14 / 15 misadjusted or broken wire. CASSETTE BLOW PIPES positioned wrong.
14	Fi=4		N	CASSETTE CENTRING PROBLEM	SWITCH S9 (CCO) was not actuated after START OF CENTRING	CENTRING BARS blocked. SWITCH S9 (CCO) defective, misadjusted. MOTOR M2 defective.
15	Fi=5		N	PLEASE REENTER CASSETTE	CASSETTE did not reach ENDSWITCH S13 (CES) after second attempt	SWITCH S13 (CES) misadjusted. CASSETTE SUPPORT to high. CENTRING BARS not open far enough.
16	Fi=6	Fi6	N	INSERT CASSETTE LATCH FIRST AND UPPERMOST	CASSETTE not recognised and ejected	SWITCH S10 (CCI) actuated. Wrong amount of pulses from SENSOR B1 (S)
22	OP=2	OP2	Y	*22* CASSETTE OPENING PROBLEM	OPENER did not reach END POSITION	SWITCH S4 (OC) not actuated. SWITCH S4 defective. SWITCH S4 misadjusted. CAM misadjusted.
23	OP=3		N	CASSETTE OPENING PROBLEM INSERT CASSETTE LATCH FIRST AND UPPERMOST	SWITCH S1 (CO) not actuated by CASSETTE LID. CASSETTE not opened and ejected..	Faulty CASSETTE. SWITCH S1 (CO) misadjusted. OPENER slipped out of CASSETTE LATCH. OPENER did not reach CASSETTE LATCH. HOOK did not engage.
33	FPD=1		N	CHECK CASSETTE IN DARKROOM. EXPOSED FILM NOT UNLOADED. RE-ENTER CASSETTE PLEASE	Two FILMS are in the CASSETTE. (tube side and lid side)	2 FILMS in CASSETTE. FILM PRESENCE DETECTOR misadjusted. REFLECTIVE STICKERS dirty. No REFLECTIVE STICKERS in CASSETTE.

35	FPD=2		N	CASSETTE WAS EMPTY	FILM in CASSETTE not recognised	FILM CURL to big. SENSOR may look underneath the FILM. REFLECTIVE STICKER in wrong position. SERIAL UNLOADING with empty CASSETTE.
36	FPD=3		N	FILM ADHERS TO UPPER SCREEN. PLEASE RE-ENTER CASSETTE	FILM sticks to LID	BLOW PIPES misadjusted. No air was blown. BLOW PIPES glogged. REFLECTIVE STICKERS at LID missing or dirty. FILM PRESENCE DETECTOR TOP misadjusted.
41		CL1	N	CASSETTE CLOSING PROBLEM. OPEN COVER OF ML700, PUSH FILM INTO CASSETTE ALL THE WAY, CLOSE COVER, PRESS C. CAUTION: FILM IS UNUSABLE	CASSETTE is not closed	Unexposed FILM is in CASSETTE LATCH. Check PARAMETER LOWER POCKET and POCKET DELAY. SWITCH S6 (PRD) misadjusted.
42	CL=2	CL2	Y	*42* CASSETTE IS OPEN	MOTOR M3 did not start	FUSE F3 blown. MOTOR M3 defective. SWITCH S4 (OC) defective.
51	CO=1	CO2	N	CASSETTE TRANSPORT PROBLEM. OPEN CAVER OF ML700. EXTRACT CASSETTE MANUALLY. CHECK CASSETTE LATCH CAUTION: FILM IS UNUSABLE	PRESSURE ROLLER not lifted by CASSETTE	CASSETTE blocked by OPENER. SWITCH S8 (PRL) misadjusted. SWITCH S8 defective.
52	CO=2	CO6	Y	*52* CASSETTE TRANSPORT PROBLEM	PRESSURE ROLLER not lifted by MOTOR	FUSE F3 blown. MOTOR M3 defective. SWITCH S5 (PRU) misadjusted. SWITCH S5 defective.
53	CO=3	CO7	Y	*53* CASSETTE CENTRING PROBLEM	CENTRING BARS not open	FUSE F2 blown. MOTOR M2 defective.
54	CO=4		Y	*54* CASSETTE TRANSPORT PROBLEM	PRESSURE ROLLER not lowered by MOTOR	FUSE F3 blown. MOTOR M3 defective. SWITCH S6 (PRD) misadjusted. SWITCH S6 defective.
61			N	MAGAZINE NOT READY	Wrong cassette size detected	SENSOR S2 (CW0) or S3 (CW1) defective / misadjusted. SENSOR B1 (CS) defective. SLOTTED BAR misadjusted. FILM PRESENCE DETECTOR (TYPE 2 / MAMMO) misadjusted.
71	UN=1		N	FILM PICK UP PROBLEM IN CASSETTE EXPOSED FILM NOT UNLOADED	CASSETTE not unloaded	SENSOR B6 (FOC) interrupted to early / misadjusted. Filmjam between CONVEYER and TUNNEL. FUSE F5 blown. MOTOR M5 defective.

72	UN=2		N	FILM JAMMED IN TUNNEL	FILM JAM at TUNNEL ENTRY	FILM JAM SENSOR B8 (TSF) misadjusted / defective. FUSE F5 blown. MOTOR M5 defective.
73	UN=3		N	FILM JAMMED IN TUNNEL	FILM JAM at TUNNEL EXIT	PROCESSOR ENTRY ROLLERS misadjusted. SENSOR B7 (TSR) misadjusted / defective. FUSE F5 blown. MOTOR M5 defective.
75	UN=5		Y	*75* FILM PICK UP PROBLEM IN CASSETTE	CASSETTE SUCKER BAR not in CASSETTE	FUSE F4 blown. MOTOR M4 defective. SWITCH S11 (CSI) misadjusted / defective.
76	UN=6	UN3	N		UNLOAD ENDSWITCH TO EARLY	SWITCH S12 (CSO= is made before SENSOR B6 (FOC) is interrupted. Vacuum to low. CASSETTE SUCKER BAR misadjusted. SENSOR B6 misadjusted.
77	UN=7	UN3	N	EXPOSED FILM NOT UNLOADED PLEASE REENTER CASSETTE	CASSETTE not unloaded after 3 attempts	CASSETTE SUCKER BAR misadjusted
78	UN=8		Y	*78* FILM PICK UP PROBLEM IN CASSETTE	CASSETTE not closed. CASSETTE SUCKER BAR not completely out of CASSETTE	Switch S12 (CSO) misadjusted / defective. MOTOR M4 defective.
79	UN=9		N	FILM TRANSPORT PROBLEM IN TUNNEL CHECK CASSETTE IN DARKROOM	Transport problem in TUNNEL. SENSOR B8 (TSF) should see a FILM 4 seconds after SENSOR B6 (FOC) was interrupted	FUSE F4 defective. SENSOR B8 (TSF) misadjusted / defective. VACUUM OFF TIME too short. FILM fell back into CASSETTE.
7A	UN=10		Y	*7A* FILM PICK UP PROBLEM IN CASSETTE	CASSETTE SUCKER BAR is not withdrawn after 3 attempts	SWITCH S12 (CSO) misadjusted / defective. FUSE F4 blown. MOTOR M4 defective.
7B	UN=11		Y	*7B* FILM PICK UP PROBLEM IN CASSETTE	TRAILING EDGE of exposed FILM not recognised	SENSOR B6 (FOC) stays covered. SUCKER BAR lost FILM. VACUUM too weak. VACUUM OFF TIME WRONG.
81			Y	*81* FILM PICK UP PROBLEM IN MAGAZINE CASSETTE NOT LOADED	CASSETTE not loaded and MAGAZINE SUCKER BAR somewhere between MAG. SUCKER BAR IN POS and TRANSPORT POSITION 1. CASSETTE is open	FILM POCKET has reached the CASSETTE LEVEL, after BREAK MESSAGE “CYCLE NOT SUCCESSFUL” occured. This code shows up if there was in addition A3 or B1. It avoids the closing of the CASSETTE.
82			Y	*82* ZERO POSITION NOT REACHED	STEPPER MOTOR not in HOME POSITION though the MAGAZINE SUCKER BAR is in TRANSPORT POSITION	SENSOR B19 defective. SENSOR B17 (UL) or B18 (LL) not actuated. FILM POCKET blocked. STEPPER MOTOR M8 not running. Communication problem Master -> Slave.

83			Y	*83* CASSETTE NOT LOADED	CASSETTE not loaded	Communication problem Master -> Slave. MAGAZINE SUCKER BAR not in MAGAZINE SUCKER BAR position. FILM POCKET time-out. Master did not receive mssg. TRANSPORT POS 1 REACHED or FILM LOADED within 40 seconds after CASSETTE UNLOAD
91			N	NO MAGAZINE HAS BEEN SELECTED	Operator did not pull out a MAGAZINE for SERIAL UNLOAD	
92			Y	*92* NO FILM PICKED UP FROM MAGAZINE	SERIAL UNLOAD problem. STEPER MOTOR not in HOME POSITION though MAGAZINE SUCKER BAR is in TRANSPORT POSITION	SENSOR B19 defective. SENSOR B17 (UL) or B18 (LL) not actuated. FILM POCKET blocked. STEPPER MOTOR M8 not running. Communication problem Master -> Slave.
A1 + B2		MNO	N	IS MAGAZINE CORRECTLY POSITIONED? CASSETTE NOT LOADED	MAGAZINE was not opened	MAGAZINE not seated correctly. SENSOR B27 (MCO) defective. REFLECTIVE STICKER at MAGAZINE LID missing. After leaving SERVICE MODE, MAGAZINE OPENER MOTOR M6 not in CLOSED POSITION.
A2 + B2		MTO	Y	*A2* FILM PICK UP PROBLEM in MAGAZINE. CASSETTE not loaded	Problem with MAGAZINE OPENER MOTOR M6	Fuse F6 blown. MOTOR M6 defective. SENSOR B21 (MMC) defective.
A3 + B2		FTO	Y	*A3* FILM PICK UP PROBLEM in MAGAZINE. CASSETTE not loaded	FILM POCKET MOTOR M7 does not move correctly	MAGAZINE SUCKER BAR blocked. FUSE F7 blown. MOTOR M7 defective. SENSOR B11 (MSI) or B12 (TP) or B13 (TP1) defective / misadjusted.
A5		STO	Y	*A5* *82*	Movement of STEPPER MOTOR not correct.	FILM POCKET BLOCKED
82 + B2				FILM PICK UP PROBLEM IN MAGAZINE. ZERO POSITION NOT REACHED. CASSETTE NOT LOADED	MSSG 82 is displayed if STO occurs after the CASSETTE is loaded. MSSG B2 is displayed if STO occurs before the CASSETTE is loaded.	STEPPER MOTOR M8 defective. SENSOR B15 (RP) defective. REFERENCE POSITION CASSETTE LEVEL almost 300.
A5 + 82 + B2		SES STO	Y	*A5* *82* CASSETTE NOT LOADED. ZERO POSITION NOT REACHED	Movement of STEPPER MOTOR not correct.	SENSOR B17 (UL) or B18 (LL) defective

AB + B2		FL3	N	RIFFLE FILM IN MAGAZINE. CASSETTE NOT LOADED	During FILM PICK UP from MAGAZINE, FILM lost 3 times	FILMS stick together in MAGAZINE. Vacuum too weak. SENSOR B9 (MFP) not actuated. SENSOR B9 defective. FUSE F10 blown.
AD + B2		3DD	N	RIFFLE FILM IN MAGAZINE. CASSETTE NOT LOADED	During FILM PICK UP FROM MAGAZINE, a double FILM was detected 3 times.	FILMS stick together in MAGAZINE. Vacuum too high. DOUBLE FILM DETECTOR misadjusted. HUMIDIFIER not working.
AE + B2		MWE	N	MAGAZINE NOT READY CASSETTE NOT LOADED	MAGAZINE was empty	Gain of SENSOR B10 (ME) too high. SENSOR B10 defective.
AF + B2		FDT	N	FILM PICK UP PROBLEM IN MAGAZINE. CASSETTE NOT LOADED	FILM lost during tranasport from MAGAZINE to CASSETTE	Vacuum too weak. SENSOR B9 (MFP) not actuated. RIBBON CABLE from PCB A11 to PCB A7 broken.
B1 + B2		FSS	Y	*B1* FILM PICK UP PROBLEM IN MAGAZINE. CASSETTE NOT LOADED	FILM sicks to MAGAZINE SUCKER BAR	Air was not blown into SUCKERS. Not enough air pressure. SENSOR B9 (MFP) blocked. RIBBON CABLE from PCB A11 to PCB A7 broken.
B2			N	CASSETTE NOT LOADED		Additional message. Occurs only together with other messages
B3 + B2		NFS FLT DFD	N	CASSETTE NOT LOADED. PLEASE REENTER CASSETTE	No FILM was taken out of MAGAZINE	After 3 attempts FILM was still in MAGAZINE. Occured during 3 unsuuessful attempts when FLT and DFT came up. SENSOR B11 (MSI) misadjusted
B4 + B2			Y	*B4* FILM PICK UP PROBLEM IN MAGAZINE. CASSETTE NOT LOADED	SUCKER BAR did not reach FILM in MAGAZINE	FILM POCKET blocked. BLOW PIPES ride on MAGAZINE EDGE. SENSOR B9 (MFP) not actuated or defective
C1			N	FILM JAMMED IN TUNNEL	A FILM JAM is detected after a cycle	FILM is detected at TUNNEL ENTRY. BELT to TUNNEL broken
D2			Y	*D2* ML700 NOT READY	Parameter ENABLE OPERATION is set to 0	This happens when you forgot to set it to
					No display after POWER UP	POWER FAIL CIRCUIT of the POWER SUPPLY became triggered during POWER UP. Power down, wait a few minutes and power up again. Check POWER SUPPLY admustments.

			Y		Strange behaviour of SLAVE PROCESSOR	Check connection (RIBBON CABLE) between PCB A0 and PCB A2. Connections may be loose. This may happen during installation.
				MAGAZIN IN POS “?” IS OPEN TAKE FILM OUT OF MAGAZINE AND CLOSE IT. SOME OF THE FILMS PROBABLY ARE EXPOSED	B-30 sensor blocked	Check alignment of B-30 SENSOR Check MAGAZINES for possible film sticking out
				RE-ENTER CASSETTE, PLEASE	film not removed from CASSETTE proberly	Check B6 SENSOR setup Check vacume off time Check film present detections M5 MOTOR intermitantly running backwards
				POWER FAIL RECOGNIZED	MULTILOADER was powered down when not in home position	Perform 3585 ROUTINE

CHAPTER 2

SERVICE MODE

THE SERVICE MODE GIVES ACCESS TO:

- MACHINE SETUP
- STATISTICS
- DIAGNOSTICS

SERVICE KEYPAD FUNCTIONS

Key in FDAB + 2 Digit Data		
Display Screen No. 1		
Key in 9		
Display Screen No. 2		
Key in 9		**Key in A**
		Print Screens 1 and 2
1	CHANGE TIME	
2	CHANGE PARAMETERS	
3	CLEAR STATISTICS	
4	QUICK OPERATION	
5	PRINT STATUS REPORT	
6	TEST SENSORS	
7	ENTER TEST MODE	
8	BACK TO MAIN MENU	

OPTION 1 CHANGE TIME		
1	YEAR	
2	MONTH	
3	DAY DOW	DOW = Day of week Monday = 1
4	HOURS	
5	MINUTES	
6	SECONDS	
7	START	
8	BACK	

OPTION 2 CHANGE PARAMETERS SCREEN 1		
	MAG. LEVEL 1	1016
2 NEW	MAG. LEVEL 2	****
	MAG. LEVEL 3	****
280	MAG. LEVEL 4	****
3	MAG. LEVEL 5	****
	MAG. LEVEL 6	****
	MAG. LEVEL 7	4700
8 GO ON	SYNCHRON LEVEL (HOME POSITION)	2800

OPTION 2 CHANGE PARAMETERS SCREEN 2		
1	TILT POSITION	12
2	ADDITIONAL STEPS	8
3	CONTINOUS LOOP	0
4	INCH FLAG	0
5	LOWER POCKET	0
6	PROCESSOR TIME	28
7	FILM PRESENCE DETECTOR	1
8	GO ON	

OPTION 2 CHANGE PARAMETERS SCREEN 3		
1	VACUUM OFF TIME	14
2	STEP-BY-STEP MODE	0
3	DOUBLE SHEET DETECTION	1
4	TUNNEL FLAG	1
5	PROCESSOR FLAG	1
6	POCKET DELAY	00
7	ENABLE OPERATION	1
8	BACK	

OPTION 3
Clear Memory 1 to 5

OPTION 4
Run a cycle without leaving Service Mode
OPTION 5
Print STATUS REPORT
OPTION 6
TEST SENSORS

OPTION 7 TEST MODE SCREEN 1
MOTORS 1 CASSETTE IN-OUT
2 ALIGN CASSETTE
3 OPEN-CLOSE CASSETTE
4 CASSETTE SUCKER BAR
5 FILM -> PROCESSOR
6 OPEN-CLOSE MAGAZINE
7 MAGAZINE SUCKER BAR
8 NEXT PAGE

OPTION 7.1 MOTORS CASSETTE IN-OUT
FEED CASSETTE 1 FEED IN
!!! 3 FEED IN UNSWITCHED
!!! 4 FEED OUT UNSWITCHED
8 RETURN

OPTION 7.2 MOTORS ALIGN CASSETTE
ALIGN CASSETTE 1 ALIGN
2 RELEASE
8 RETURN

OPTION 7.3 MOTORS OPEN-CLOSE CASSETTE		
OPEN CLOSE CASSETTE		1 OPEN
		2 CLOSE
	!!!	3 OPEN UNSWITCHED
	!!!	4 CLOSE UNSWITCHED
		5 LOWER SWITCH SHAFT
		6 RAISE SWITCH SHAFT
		8 RETURN

OPTION 7.4 MOTORS CASSETTE SUCKER BAR		
CASSETTE SUCKER BAR		1 TAKE
		2 BACK
	!!!	3 TAKE UNSWITCHED
	!!!	4 BACK UNSWITCHED
	!!!	5 BACK 100 ms UNSW.
		8 BACK

OPTION 7.5 MOTORS FILM -> PROCESSOR	
FILM -> PROCESSOR	1 ON
	2 OFF
	8 RETURN

OPTION 7.6 MOTORS OPEN-CLOSE MAGAZINE			
SCREEN 1			
SELECT MAG.	1 MAG. 1	**SCREEN 2**	
	2 MAG. 2	OPEN-CLOSE MAGAZINE	1 OPEN 2 CLOSE
	3 MAG. 3		
	4 MAG. 4		6 DEENERGISE SOLENOID
	5 MAG. 5		
	6 MAG. 6		8 RETURN
	7 MAG. 7		
	8 RETURN		

OPTION 7.7 MOTORS MAGAZINE SUCKER BAR	
MAGAZINE	1 TAKE
SUCKER BAR	2 BACK
	8 RETURN

OPTION 7 TEST MODE SCREEN 2	
MOTORS	1 FILM POCKET
	2 VACUUM PUMPS
MAGNETIC VALVES	3 CASSETTE
	4 MAGAZINE
SOLENOIDS	5 FRONT DOOR LATCH
	6 TUNNEL FLAP
	8 RETURN

OPTION 7.8.1 MOTORS FILM POCKET	
FILM POCKET	1 UP
	2DOWN
	3 TO HOME POSITION
	4 TO LEVEL 2
	5 TO LEVEL 4
	6 TO LEVEL 7
	7 TO LEVEL CASSETTE
	8 RETURN

OPTION 7.8.2 MOTORS VACUUM PUMPS	
VACUUM PUMPS	1 ON 2 OFF
	8 RETURN

OPTION 7.8.3 MAGNETIC VALVES CASSETTE	
CASSETTE SUCKING	1 ON
	2 OFF
CASSETTE BLOWING	3 ON
	4 OFF
MAG. SUCKER BLOWING	5 ON
	6 OFF
	8 RETURN

OPTION 7.8.4 MAGNETIC VALVES MAGAZINE	
MAGAZINE SUCKING	1 ON
	2 OFF
MAGAZINE TILTING	3 ON
	4 OFF
MAGAZINE BLOWING	5 ON
	6 OFF
	8 RETURN

OPTION 7.8.5 SOLENOIDS FRONT DOOR LATCH	
FRONT DOOR LATCH	1 ON 2 OFF
	8 RETURN

OPTION 7.8.6 SOLENOIDS TUNNEL FLAP	
TUNNEL FLAG	1 ON
	2 OFF
	8 RETURN

Print STATUS REPORT before leaving SERVICEMODE.

If SERVICE MODE is entered via FDAB the following columns in the STATUS REPORT will be zeroed, after SERVICE MODE is left:

- 1

Note

. MEMORY 3 SINCE LAST REP

- 2. MEMORY 4 SINCE LAST REP
- 3. ELAPSE TIMES IN PROGRAM STATUS

SERVICE MODE SCREEN 1 and SCREEN 2

This page shows the abbreviations of the ELAPSE TIMES displayed on SREEN 1 and 2. GOOD-ELAPSE TIMES are printed bolt. NO-GOOD ELAPSE TIMES are printed italic.

DISPLAY SCREEN 1

Fi1 **Fi2** *Fi3* *Fi4* **Fi5** *Fi6* *Fi7* **Fi8** **Fi9**

OP2 **OP3**

UN1 **UN2** *UN3* **UN4** **UN5** **UN6** **UN7**

CL1 *CL2* **CL3**

CO1 *CO2* **CO3** **CO4** **CO5** *CO6* *CO7* **CO8**

A B C D E F GG HH I K L M N O P Q R
xxxxxxxx

DISPLAY SCREEN 2

M1R **M2R** **M3R** **M4R** **M5R** **M6R** **M7R**

MNO **MOP** **MCL** *MTO* *FTO* *SCE* *STO* *SES* *NT1*

SIM **FMR** **TRP** **CLR** **EXP** **TP1** **SMH** **MPR** *FNR*

MAE *MNE* *AT2* *AT3* *FLT* *FL3* *DFD* *3DD* *MWE* *FDT*

FSS *NFA* *NFS*

A B C D E F GG HH I K L M N O P Q R
xxxxxxxx

This is a HARDCOPY of SCREEN 1 and 2. To get it press KEY #A after Screen 2 is displayed.

000 **001** *000* *000* **013** *000* *000* **016** **016**

000 **033**

131 **141** *000* **150** **161** **176** **176**

000 *000* **237**

244 *000* **239** **243** **244** *000* *000* **250**

Screen 1

Elapse times

in 1/10 sec

———————————————————————————————

000 **000** **000** **000** **000** **000** **033**

000 **033** **172** *000* *000* *000* *000* *000* *000*

035 **040** **171** **207** **218** **226** **170** ***000*** *000*

000 *000* *000* *000* *000* *000* *000* *000* *000* *000*

000 *000* *000*

Screen 2

Elapse times

in 1/10 sec

0 0 0 0 0 0 81 12 N N 7 N 0 0 0 0 0.....**ERROR FLAGS**

The DISPLAY shows on Screen 1 and 2 Elapse Times from the beginning of a cycle.The above figures are just an example. They vary from cycle to cycle.

ELAPSE TIMES AND ERROR FLAGS

As soon as the **SERVICE MODE** is entered the **ELAPSE TIMES** and **ERROR FLAG**S are displayed. The first 5 lines on both screens show **ELAPSE TIMES**. They are given in 1/10 of a second since the start of a cycle. Line 7 shows the **ERROR FLAGS**. It is on both screens the same. Line 8 shows the **TOTAL CYCLE COUNTER**. Again it is the same on both screens. **ELAPSE TIMES** are events which occur at a certain time in a **FUNCTION**

SCREEN 1 contains 2 types: Socalled " **GOOD** and **NO-GOOD** " **ELAPSE TIMES**. In a normal cycle you will see times other than ZERO only in **GOOD ELAPSE TIMES** (they are printed **bold** in the overview). If a problem occurs during a cycle a time other than ZERO will be displayed for the corresponding **NO-GOOD ELAPSE TIME**, and for some **GOOD ELAPSE TIMES**. SCREEN 1 shows **ELAPSE TIMES**. **All SCREEN 1 ELAPSE TIMES are generated by the MASTER PROCESSOR**.

SCREEN 2 shows ELAPSE TIMES from the SLAVE PROCESSOR. Here it is not always possible to discriminate between **GOOD** and **NO-GOOD ELAPSE TIMES**.Depending on the various operating modes (e.g. LOAD ONLY, UNLOAD ONLY, NORMAL MODE, SERIAL UNLOAD) an ELAPSE TIME is used or not. The term **GOOD ELAPSE TIMES** in the description for SCREEN 2 is related to a **NORMAL CYCLE**. For example UNLOAD ONLY. In this MODE the FILM POCKET stays at HOME POSITION. Therefore in LINE 1 (M1R...M7R) you will find only ZEROS. In a NORMAL cycle however there has to be a time for one MAGAZINE, because a CASSETTE became reloaded.

The **ERROR FLAGS** are shown on SCREEN 1 and 2. An **ERROR FLAG** becomes set (it contains a value other than ZERO) if there is a fatal problem and a cycle cannot be completed normal. For example it is not possible to open a CASSETTE, or to take a FILM out of the CASSETTE etc. In this case the cycle is aborted and a **WARNING** or **ERROR MESSAGE** is displayed. Only **ERROR FLAGS** are used by the FUNCTION MANAGER for ERROR HANDLING.

Events which occur in normal operation (so called "GOOD ELAPSE TIMES") are printed bold. NO-GOOD ELAPSE TIMES are printed in italics.

SCREEN 1:

This SCREEN displays the Elapse Times of the Master Processor Functions.

*Fi*1 **Fi2** *Fi3* *Fi4* **Fi5** *Fi6* *Fi7* **Fi8** **Fi9**

OP2 **OP3**

UN1 **UN2** *UN3* **UN4** **UN5** **UN6** **UN7**

CL1 *CL2* **CL3**

CO1 *CO2* **CO3** **CO4** **CO5** *CO6* *CO7* **CO8**

A B C D E F GG HH I K L M N O P Q R
xxxxxxxx

FUNCTION CASSETTE IN (Fi1....Fi9)

This function controls the CASSETTE TRANSPORT from the INDUCTIVE SENSORS to the CASSETTE END SWITCH

LINE 1

- *Fi1 : PRESSURE ROLLER NOT LIFTED (BY CASSETTE)*
- **Fi2 : CASSETTE GRASPED**
- *Fi3 : PRESSURE ROLLER NOT LIFTED (BY MOTOR)*
- *Fi4 : CASSETTE NOT AT ENDSWITCH*
- **Fi5 : CLOSE CENTRING BARS**
- *Fi6 : CASSETTE NOT RECOGNIZED*
- *Fi7 : CASSETTE NOT CENTRED*
- **Fi8 : CASSETTE CENTRED**
- **Fi9 : INFEED ENDED**

Fi1: PRESSURE ROLLER NOT LIFTED (BY CASSETTE).

This is a **NO-GOOD ELAPSE TIME**.

When the CASSETTE is fed into the ML700 it triggers the INDUCTIVE SENSORS. This is the signal for the OPERATING MANAGER to give control to the FUNCTION MANAGER, the FUNCTION MANAGER starts now the FUNCTION CASSETTE IN. The CASSETTE is transported into the ML700 and the PRESSURE ROLLER is lifted. This in turn will deactuate SWITCH S8(PRL). If this does not happen during the next 10 sec. the time is written into **ELAPSE TIME Fi1** and the **ERROR FLAG Fi** is set to **1**. Then the FUNCTION CASSETTE IN is aborted and the FUNCTION MANAGER starts the ERROR HANDLING. In this case the following WARNING MESSAGE is displayed :

INSERT CASSETTE LATCH FIRST AND UPPERMOST

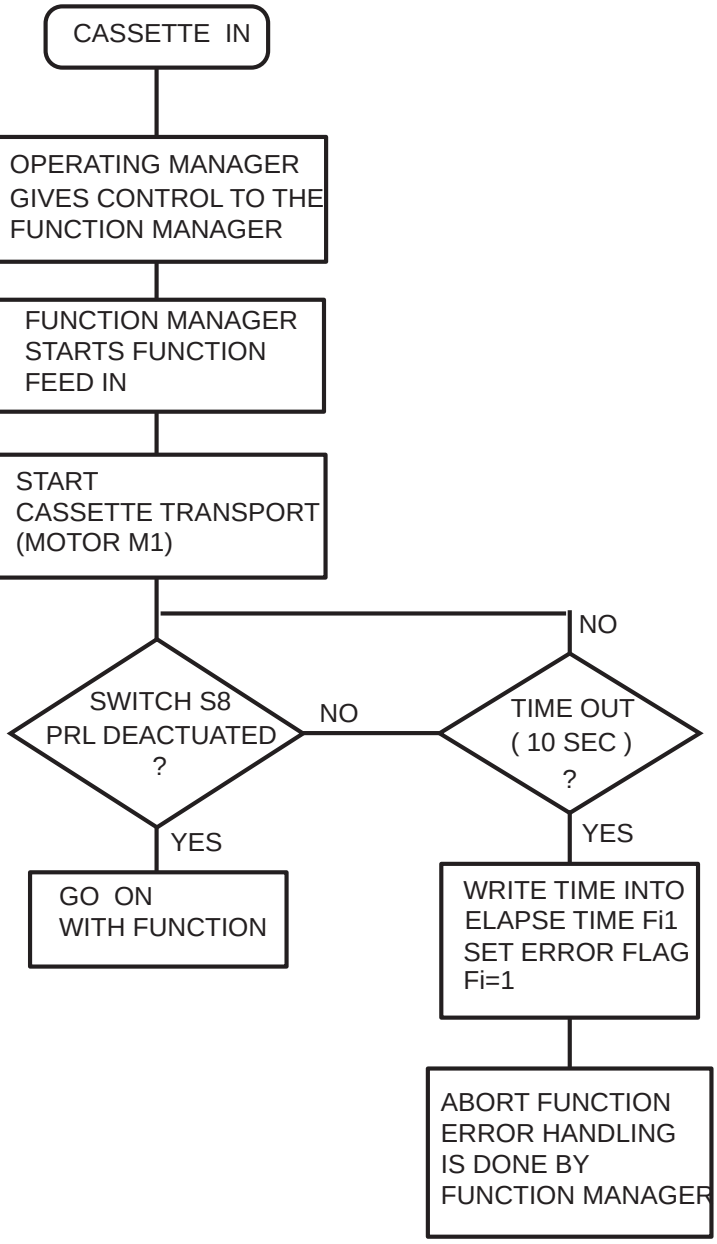


figure 2-1

Fi2: CASSETTE GRASPED

This is a **GOOD ELAPSE TIME** .

After the TRANSPORT BELT starts moving the CASSETTE is transported into the ML700, the PRESSURE ROLLER is lifted and SWITCH 8 (PRL) is deactuated. The time is now written into **ELAPSE TIME Fi2**. If it takes less than 0.1 sec. to deactuate SWITCH S8, the time can not be displayed correctly. Therefore this time is converted into 255.

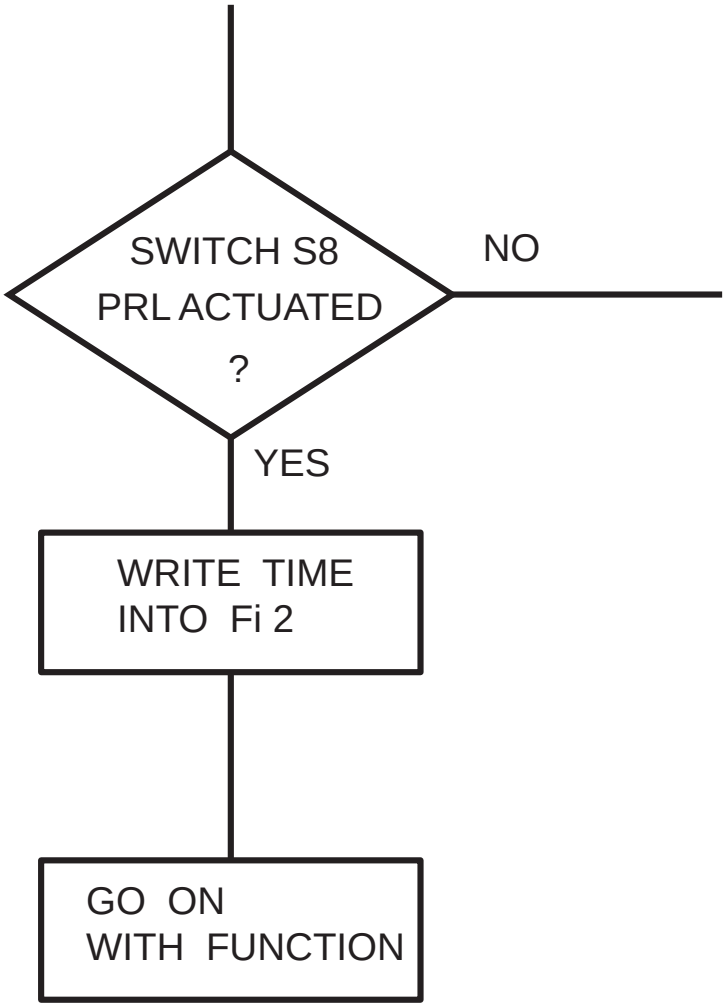


figure 2-2

Fi3: PRESSURE ROLLER NOT LIFTED

This is a **NO-GOOD ELAPSE TIME**.

3.5 sec. after Fi2 the MOTOR M3 (CASSETTE OPENING) is started to lift the PRESSURE ROLLER. If within the next second SWITCH S5 (PRU) is not actuated, the time is written into **ELAPSE TIME Fi3** and the **ERROR FLAG Fi** is set to **2**. Then the FUNCTION CASSETTE IN is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the following ERROR MESSAGE is displayed:

CASSETTE ENTRY PROBLEM

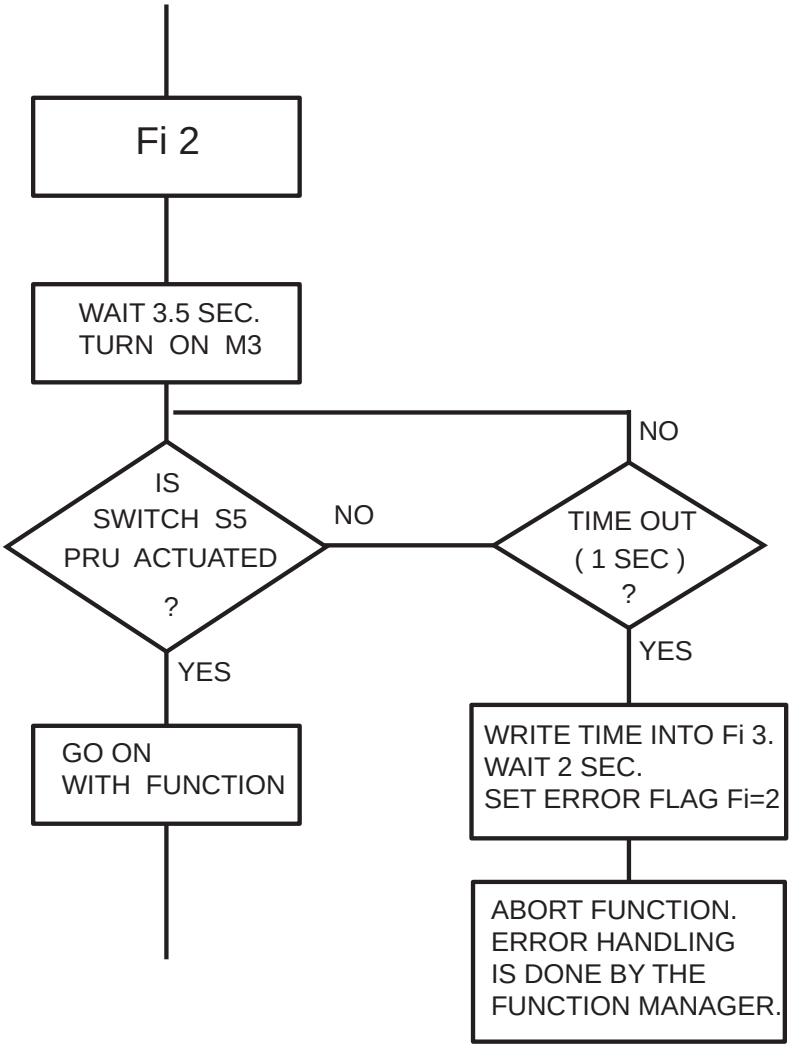


figure 2-3

Fi4: CASSETTE NOT AT END SWITCH

This is a **NO-GOOD ELAPSE TIME**.

After SWITCH S5 (PRU) is actuated the MOTOR M3 is stopped. BELT TRANSPORT MOTOR M1 is still running and within the next 5 sec. SWITCH S13 (CES) has to be actuated by the CASSETTE (the CASSETTE reached the CASSETTE END SWITCH). If the CASSETTE did not reach the END SWITCH, the time is written into **ELAPSE TIME Fi4** and the **ERROR FLAG Fi** is set to **3**. Then the FUNCTION is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the following WARNING MESSAGE is displayed:

INSERT CASSETTE LATCH FIRST AND UPPERMOST

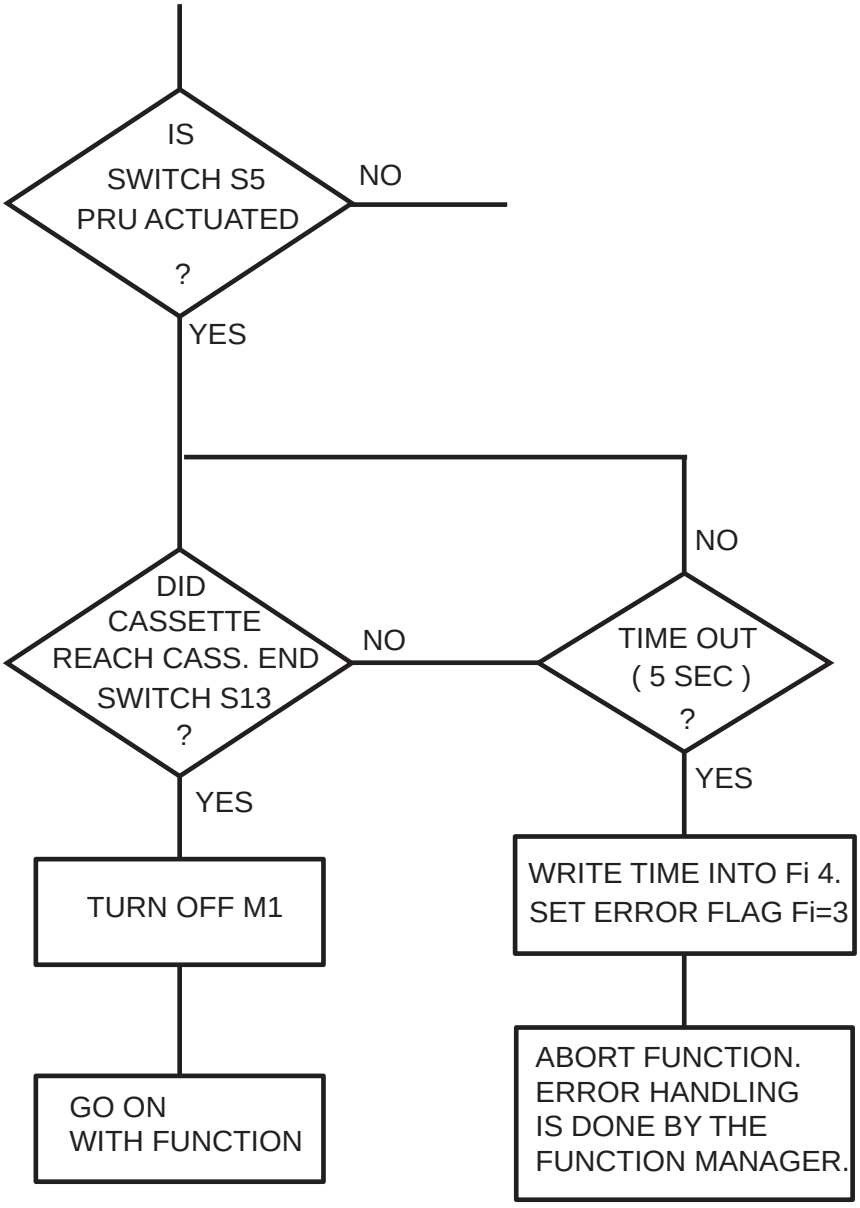


figure 2-4

Fi5: CLOSE CENTRING BARS

This is a **GOOD ELAPSE TIME**.

After the CASSETTE reached SWITCH S13 (CES) the TRANSPORT MOTOR M1 is turned off, the time is written into **ELAPSE TIME Fi5** and the CENTRING MOTOR M2 is started.

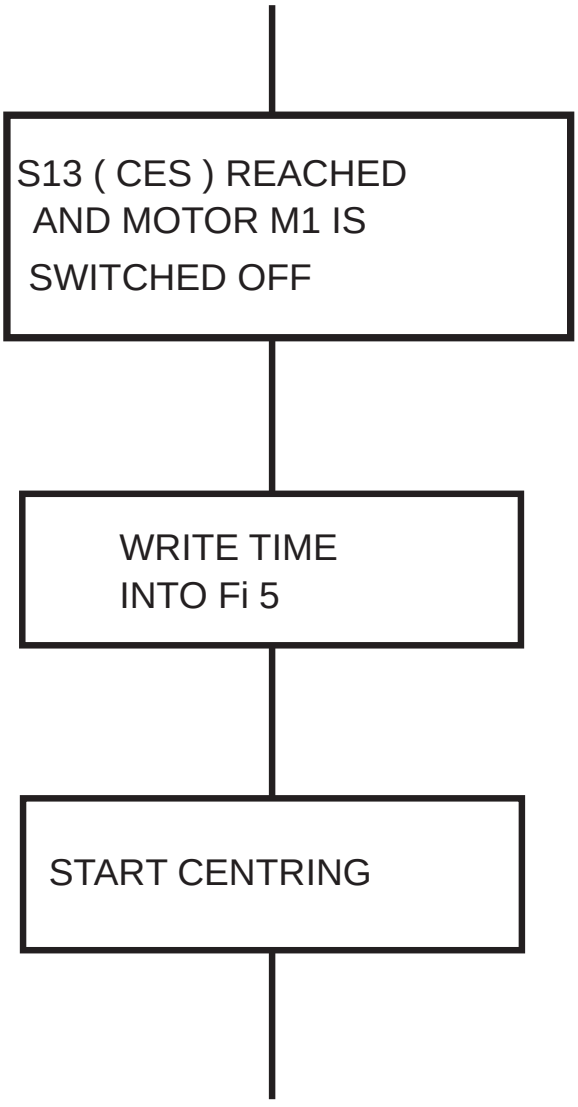


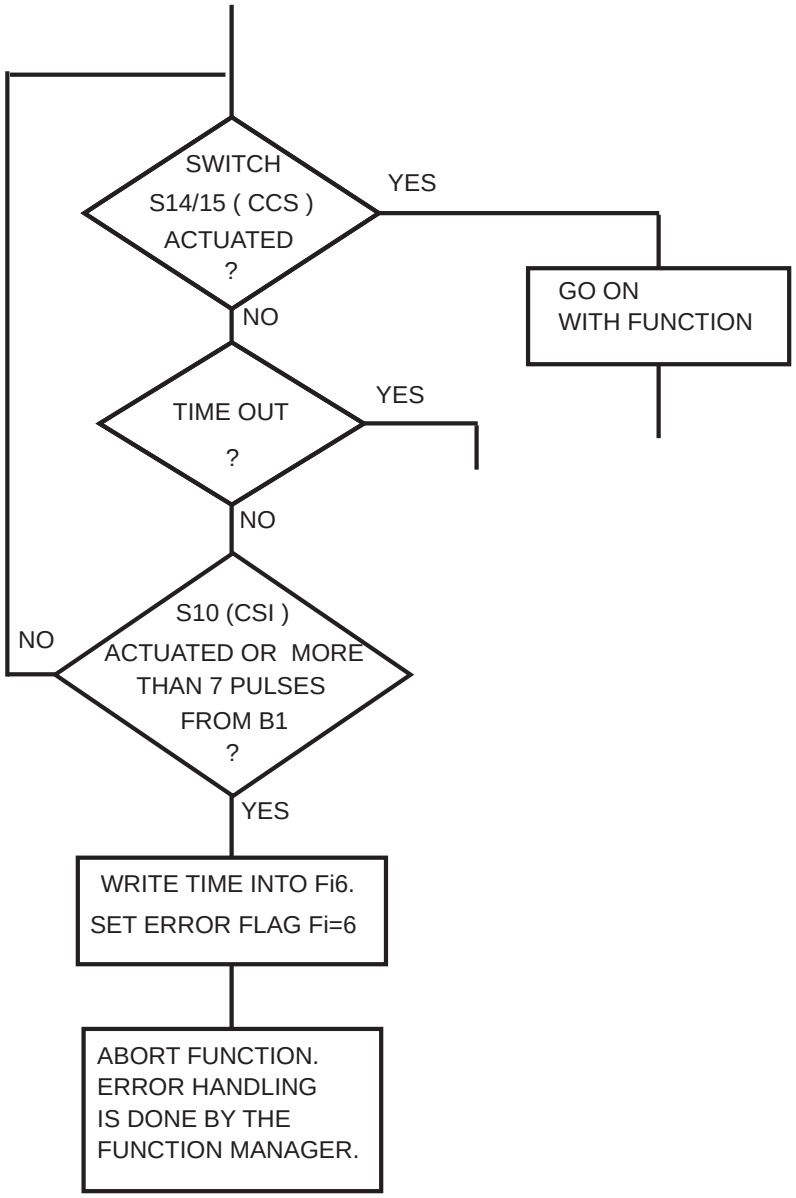
figure 2-5

Fi6: CASSETTE NOT RECOGNIZED

This is a **NO-GOOD ELAPSE TIME**.

When the CASSETTE is centred, the SWITCHES S14/15 (CCS) are actuated. If however the Operator used a CASSETTE shorter than 24cm (18x24 turned by 90 degrees) the CENTRING BARS will not be stopped by the CASSETTE and the CENTRING MOTOR M2 will be stopped when SWITCH S10 (CSI) becomes actuated. If in case of an error the CASSETTE SIZE SENSOR B1 (CS) sends out 8 or more pulses the CENTRING MOTOR M2 will be stopped too. In both cases the time is written into **ELAPSE TIME Fi6** and the **ERROR FLAG Fi** is set to 6. Then the FUNCTION is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the following ERROR MESSAGE is displayed :

INSERT CASSETTE LATCH FIRST AND UPPERMOST



CASE 1

figure 2-6

Fi7: CASSETTE NOT CENTRED.

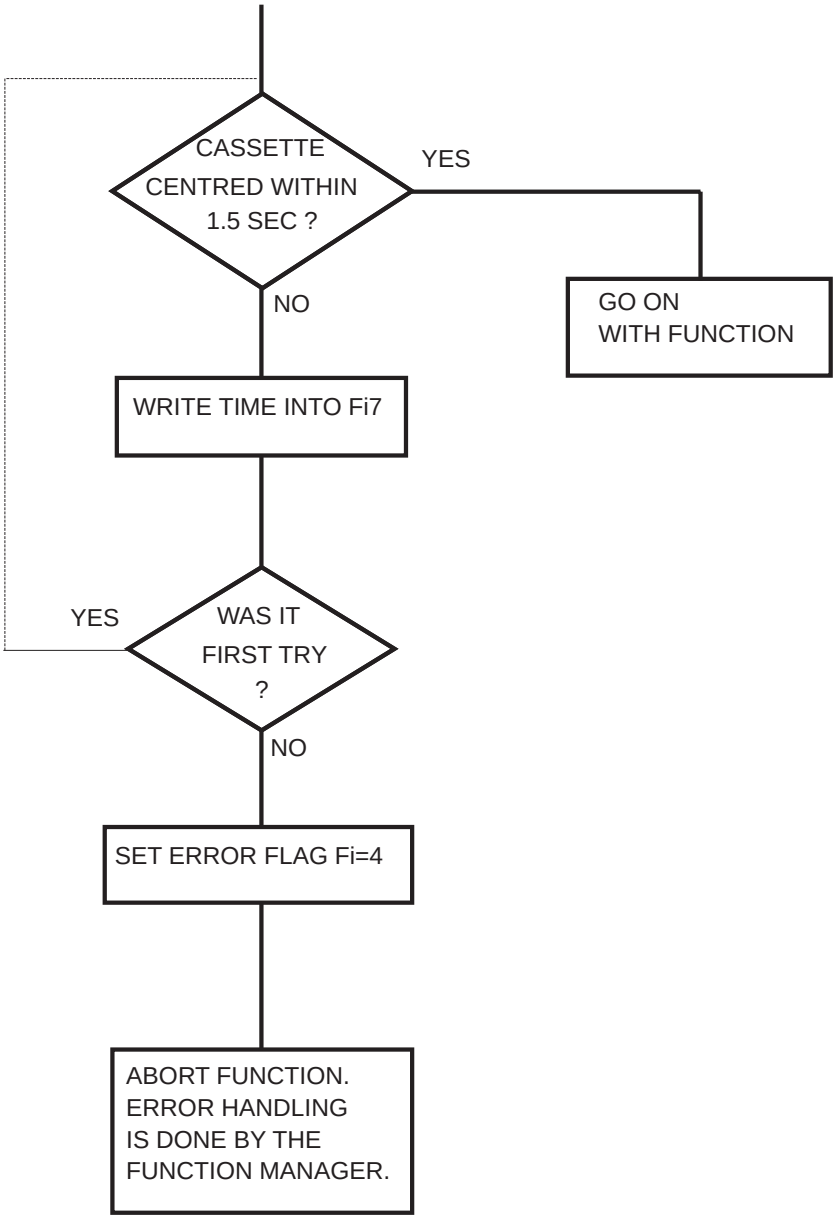
This is a **NO-GOOD ELAPSE TIME**.

The CASSETTE has to be centred 1.5 sec. after the CENTRING BARS started moving in. If this does not happen, the time is written into **ELAPSE TIME Fi7**. Then a second centring is started. If this fails too, the new time is written into **ELAPSE TIME Fi7** and the **ERROR FLAG Fi** is set to **4**. If the second attempt is successful then the **ELAPSE TIME Fi7** is not reset to Zero. In case of an error the FUNCTION is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the ERROR MESSAGE

CASSETTE CENTRING PROBLEM

is displayed.

There is another possibility that a time is written into **ELAPSE TIME Fi7** and that **ERROR FLAG Fi** is set to **4**. After the CASSETTE is centred SWITCH S13 (CES) is checked again. If it is deactuated a second infeed is started and SWITCHES S14/15 (CCS) are checked again.



CASE 1

figure 2-7

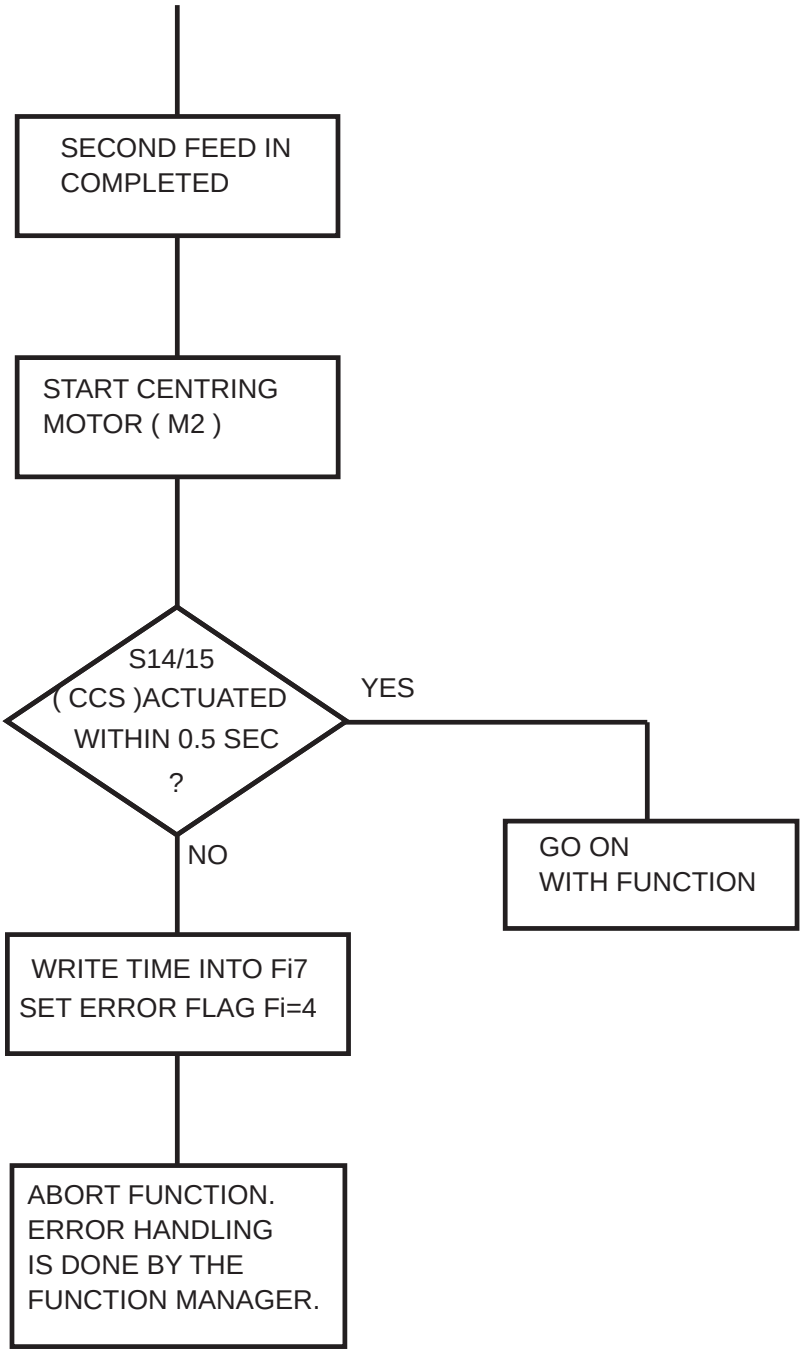

SECOND FEED IN COMPLETED
START CENTRING MOTOR (M2)
S14/15 (CCS)ACTUATED WITHIN 0.5 SEC ?
YES
NO
GO ON WITH FUNCTION
WRITE TIME INTO Fi7 SET ERROR FLAG Fi=4
ABORT FUNCTION. ERROR HANDLING IS DONE BY THE FUNCTION MANAGER.
CASE 2

figure 2-8

Fi 8: CASSETTE CENTRED

This is a **GOOD ELAPSE TIME**.

After the CASSETTE is centred (no matter if after the first or second try) the time is written into **ELAPSE TIME Fi8**.

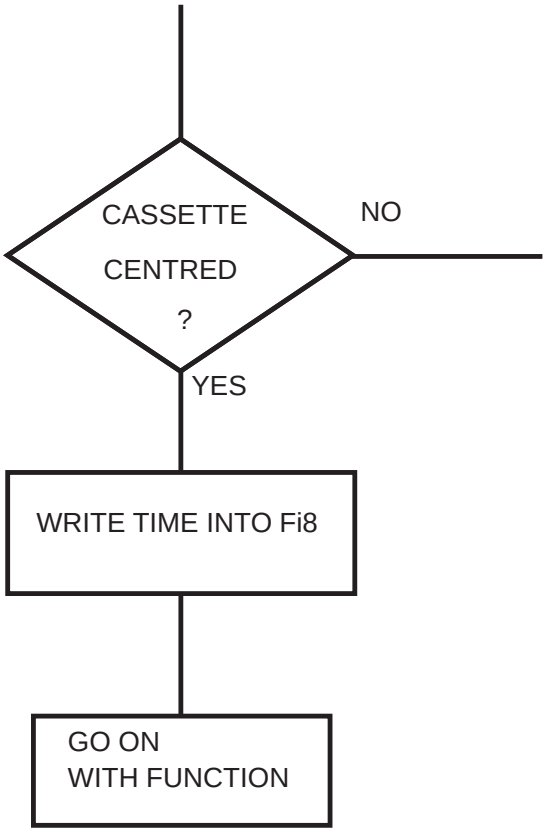


figure 2-9

Fi 9: INFEED ENDED

This is a **GOOD ELAPSE TIME**.

If the FUNCTION FEED IN is ended (no matter if it was aborted or successfully completed) the time is written into **ELAPSE TIME Fi9** and control is given back to the FUNCTION MANAGER.

FUNCTION OPEN CASSETTE (OP2.....OP3)

This Function controls the opening of a CASSETTE.

LINE 2

- *OP2: OPENER DID NOT REACH ENDPOSITION*
- **OP4 : CASSETTE OPENED**

OP2: OPENER DID NOT REACH ENDPOSITION.

This is a **NO-GOOD ELAPSE TIME**.

After the FUNCTION OPEN CASSETTE is called the CASSETTE OPENER MOTOR M3 is started. Within the next 2.5 sec. SWITCH S4 (OC) has to be actuated. If not, the time is written into **ELAPSE TIME OP2** and the **ERROR FLAG OP** is set to **2**. Then the FUNCTION is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the ERROR MESSAGE

CASSETTE OPENING PROBLEM ***** 22 *****

is displayed.

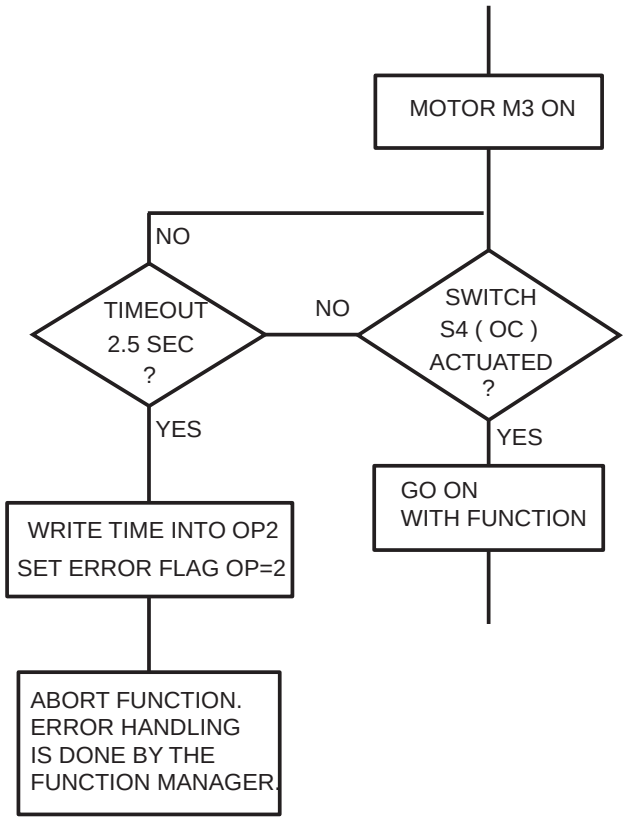


figure 2-10

OP3: CASSETTE OPENING ENDED

This is a **GOOD ELAPSE TIME**.

If the Function Open Cassette is ended (no matter if it was aborted or successfully completed) the time is written into **Elapse Time OP3** and control is given back to the Function Manager.

FUNCTION UNLOAD CASSETTE (UN1...UN7)

This FUNCTION controls the unloading of the CASSETTE.

LINE 3

- **UN1 : START SUCKER BAR MOVING INTO CASSETTE**
- **UN2 : START UNLOAD FILM FROM CASSETTE**
- *UN3 : ENDSWITCH UNLOAD TOO EARLY* (SUCKER has come back without FILM)
- **UN4 : UNLOAD ENDED**
- **UN5 : TRAILING EDGE RECOGNIZED, START PROCESSOR**
- **UN6 : FILM IS TRANSPORTED INTO TUNNEL**
- **UN7 : FUNCTION UNLOAD CASSETTE ENDED#**

UN1: START SUCKER BAR MOVING INTO CASSETTE

This is a **GOOD ELAPSE TIME**.

After the start of FUNCTION UNLOAD CASSETTE it is first checked if the previous FILM is still somewhere between SENSOR B6 (FOC) and SENSOR B7 (TSR). If this filmpath is clear, the time is written into **ELAPSE TIME UN1**.

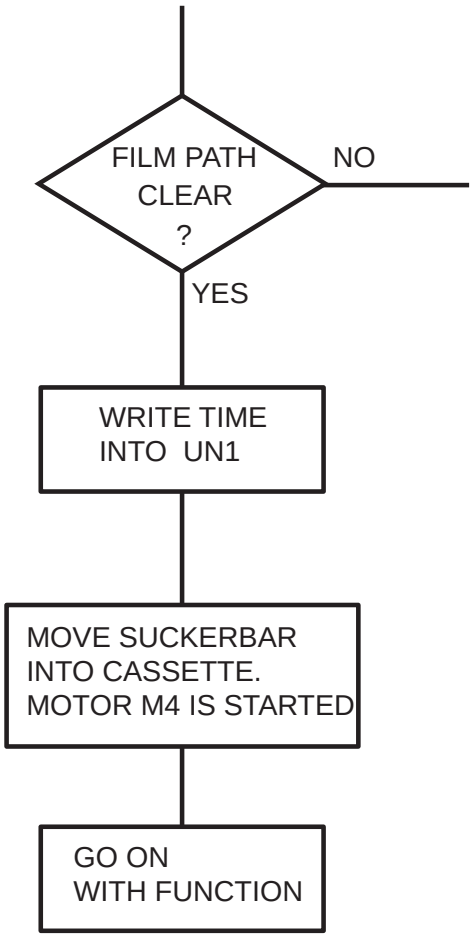


figure 2-11

UN2: START UNLOAD FILM FROM CASSETTE

This is a **GOOD ELAPSE TIME**.

The CASSETTE SUCKER BAR moves into the CASSETTE until SWITCH S11 (CSI) is actuated. MOTOR M4 is stopped and after a short pause the MOTOR M4 is turned on in the reverse direction to pull out the SUCKER BAR from the CASSETTE. The time is written into **ELAPSE TIME UN2.**

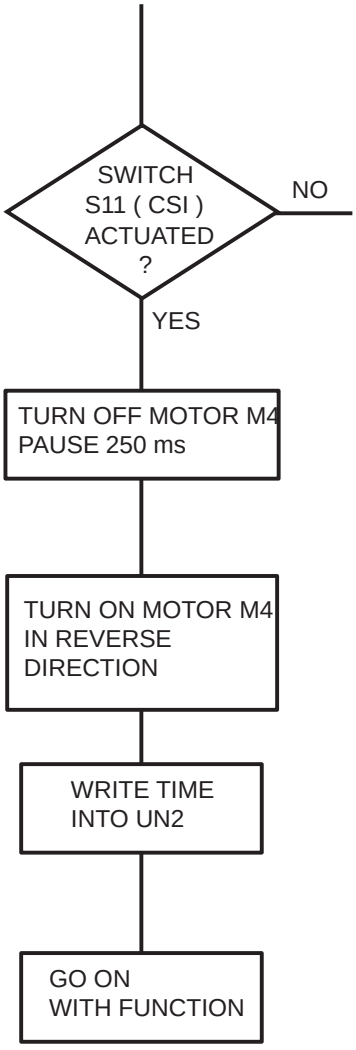


figure 2-12

UN3: UNLOAD ENDSWITCH EARLY.

This is a **No-Good Elapse Time**.

The CASSETTE SUCKER BAR dives into the CASSETTE to pick up the FILM. Then the SUCKER BAR goes out again. If for example the vacuum is too weak the FILM will stay in the CASSETTE, the SUCKER BAR reaches its END SWITCH S12 (CSO) but the SENSOR B6 (FOC) is not interrupted by the FILM. In this case the time is written into **ELAPSE TIME UN3** and the **ERROR FLAG UN** is set to **6.**

This cycle can now be repeated 2 times. If after the third attempt the FILM is still in the CASSETTE or may not be recognized by a faulty SENSOR B6 (FOC) the SUCKER BAR goes again into the CASSETTE, for it is possible that the FILM sticks to the SUCKERS and therefore it is transported back into the CASSETTE. The vacuum is turned off and the SUCKER BAR moves out of the CASSETTE. If the SUCKER BAR cannot get the FILM out of a CASSETTE (e.g. the SUCKER BAR cannot move back) time is written into **ELAPSE TIME UN3**. UNLOAD ENDSWITCH EARLY is an indication on how often the SUCKER BAR could not get the FILM out of the CASSETTE at the first try. If after the third attempt the FILM is still in the CASSETTE, the **ERROR FLAG UN** will be set to **7** and the following WARNING MESSAGE is displayed:

EXPOSED FILM NOT UNLOADED
PLEASE RE-ENTER CASSETTE

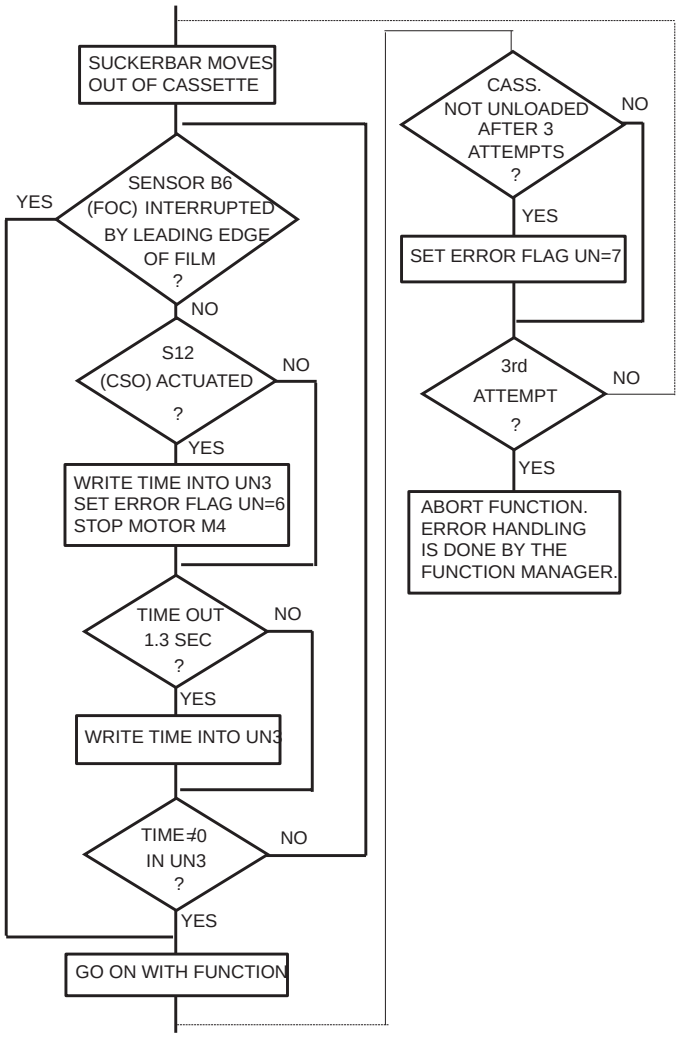


figure 2-13

UN4: UNLOAD ENDED

This is a **GOOD ELAPSE TIME**.

As soon as a FILM is successfully pulled out of the CASSETTE and the CASSETTE SUCKER BAR is in the rear position (detected by SWITCH S12(CSO), the MOTOR M4 is switched off and the time is written into **ELAPSE TIME UN4**.

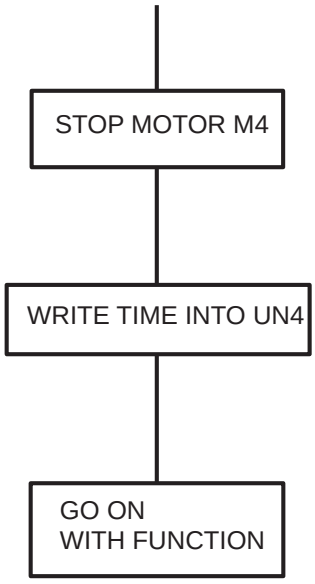


figure 2-14

UN5: TRAILING EDGE RECOGNIZED, START PROCESSOR

This is a **GOOD ELAPSE TIME**.

The SENSOR B6 (FOC) detects the trailing edge of the FILM when it is transported out of the CASSETTE. The time is written into **ELAPSE TIME UN5**.

figure 2-15

UN6: FILM IS TRANSPORTED INTO TUNNEL

This is a **GOOD ELAPSE TIME** .

The FILM is now transported to the TUNNEL and is detected by the TUNNEL SENSOR FRONT B8 (TSF). The time is then written into **ELAPSE TIME UN6**.

UN7: FUNCTION UNLOAD CASSETTE ENDED

This is a **GOOD ELAPSE TIME**.

When the FUNCTION is completed the time is written into **ELAPSE TIME UN7** and control is given back to the FUNCTION MANAGER.

FUNCTION CLOSE CASSETTE (CL1 ..... CL3)

This FUNCTION controls the closing of a CASSETTE.

LINE 4

- *CL1 : CASSETTE NOT CLOSED*
- *CL2 : ENDSWITCH CLOSING MECHANISM NOT ACTUATED*
- **CL3 : CASSETTE CLOSED**

CL1: CASSETTE NOT CLOSED

This is a **NO-GOOD ELAPSE TIME**

MOTOR M3 is started to close the CASSETTE and 2 seconds later SWITCH S6 (PRD) has to be deactuated. If not the time is written into **ELAPSE TIME CL1**. The FUNCTION is then aborted and the ERROR HANDLING is done by the FUNCTION MANAGER. The following WARNING MESSAGE is displayed:

CASSETTE CLOSING PROBLEM
OPEN COVER OF ML 700
PUSH FILM INTO CASSETTE
ALL THE WAY,CLOSE COVER,
PRESS “C”.CAUTION : FILM IS
UNUSABLE

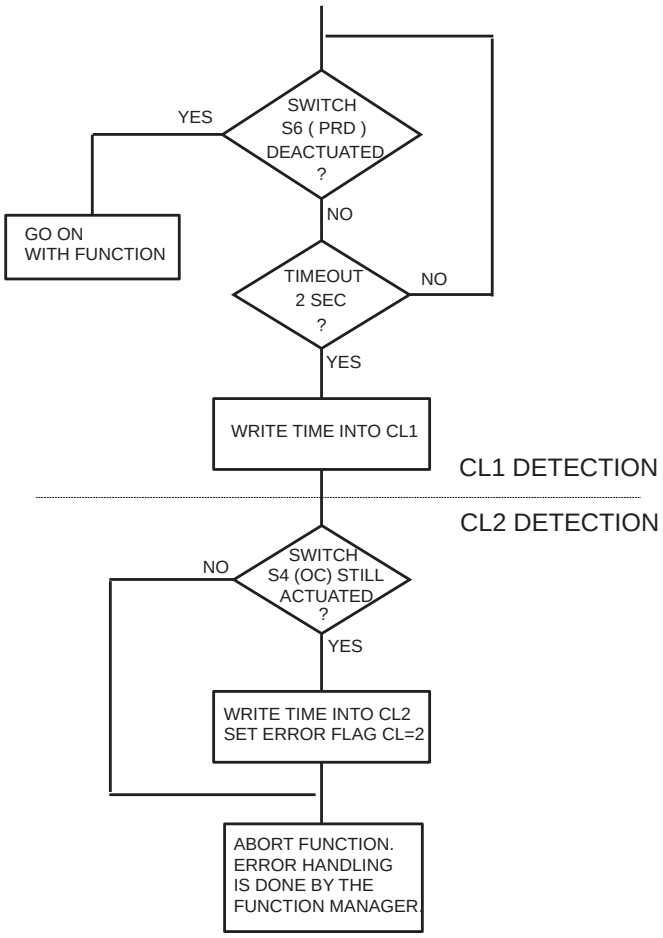


figure 2-16

CL2: ENDSWITCH CLOSING MECHANISM NOT ACTUATED

This is a **NO-GOOD ELAPSE TIME**.

If there is a CL1 Problem, then it is possible that the MOTOR M3 is not started. This is checked by reading the state of SWITCH S4 (OC) and if it stays actuated the time is written into **ELAPSE TIME CL2** and the **ERROR FLAG CL** is set to **2**. The FUNCTION is then aborted and the ERROR HANDLING is done by the FUNCTION MANAGER. For Flowchart see ELAPSE TIME CL1.The following ERROR MESSAGE is displayed:

CASSETTE IS OPEN * 42 *

CL3: CASSETTE CLOSED

This is a **GOOD ELAPSE TIME**.

If the CASSETTE is successfully closed, the time is written into **ELAPSE TIME CL3** and control is given back to the FUNCTION MANAGER.

FUNCTION CASSETTE OUT (CO1 ..... CO8)

This FUNCTION controls the transport of the CASSETTE out of the ML700.

LINE 5

- **CO1 : CENTRING BARS OPENED**
- *CO2 : PRESSURE ROLLER NOT LIFTED (BY CASSETTE)*
- **CO3 : PRESSURE ROLLER LIFTED**
- **CO4 : PRESSURE ROLLER LIFTED (BY MOTOR)**
- **CO5 : CASSETTE TRANSPORTED OUT OF MULTILOADER 700**
- CO6 : PRESSURE ROLLER NOT LIFTED (BY MOTOR)
- *CO7 : CENTRING BARS NOT OPENED*
- **CO8 : FUNCTION CASSETTE OUT ENDED**

CO1: CENTRING BARS OPENED

This is a **GOOD ELAPSE TIME.**

The CASSETTE is transported out and the CENTRING BARS are moved outwards. They will reach their outermost position and SWITCH S9 (CCO) is actuated. MOTOR M2 is turned off and the time is written into **ELAPSE TIME CO1**

CO2: PRESSURE ROLLER NOT LIFTED BY CASSETTE

This a **NO-GOOD ELAPSE TIME**.

The CENTRING BARS are moved out and the CASSETTE BELT MOTOR M1 is started. Within the next 1.5 sec SWITCH S8 (PRL) has to become deactuated. If a timeout occurs the time is written into ELAPSE TIME CO2 and ERROR FLAG CO is set to 1.

The following WARNING MESSAGE is displayed:

CASSETTE TRANSPORT PROBLEM OPEN COVER OF ML700
EXTRACT CASSETTE MANUALLY CHECK CASSETTE LATCH
CAUTION FILM IS UNSUABLE

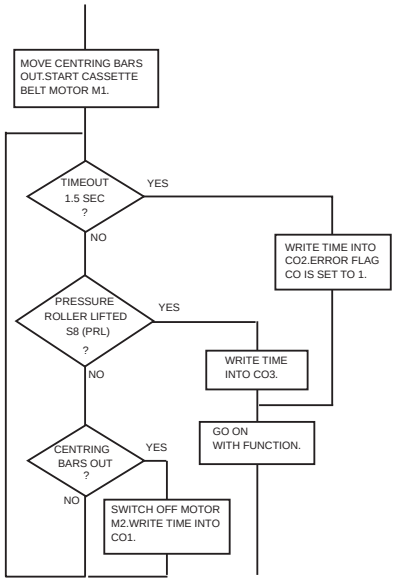


figure 2-17

CO3: PRESSURE ROLLER LIFTED

This is a **GOOD ELAPSE TIME**

The CASSETTE is transported out and the PRESSURE ROLLER is lifted by the CASSETTE. This is sensed by SWITCH S8 (PRL). The time is written into **ELAPSE TIME CO3**. See flowchart ELAPSE TIME CO2.

CO4: PRESSURE ROLLER LIFTED (BY MOTOR)

This is a **GOOD ELAPSE TIME**.

To get out the CASSETTE easily the PRESSURE ROLLER is lifted completely. This is done by MOTOR M3. As soon as SWITCH S5 (PRU) is actuated, MOTOR M3 is turned off and the time is written into **ELAPSE TIME CO4**.

CO5: CASSETTE TRANSPORTED OUT OF ML700

This is a **GOOD ELAPSE TIME**.

After the PRESSURE ROLLER was lifted by the CASSETTE, the CASSETTE TRANSPORT MOTOR stays on for additional 0.5 sec. Then the time is written into **ELAPSE TIME CO5**.

CO6: PRESSURE ROLLER NOT LIFTED (BY MOTOR)

This is a **NO-GOOD ELAPSE TIME**.

To get out the CASSETTE easily the PRESSURE ROLLER is lifted completely. This is done by MOTOR M3. See **ELAPSE TIME CO4**. If SWITCH S5 (PRU) is not actuated within the next 1.5 sec the time is written into **ELAPSE TIME CO6** and the **ERROR FLAG CO** is set to 2. The function is aborted and the ERROR HANDLING is done by the FUNCTION MANAGER. The following ERROR MESSAGE is displayed:

CASSETTE TRANSPORT PROBLEM *52*

CO7: CENTRING BARS NOT OPEN

This is a **NO-GOOD ELAPSE TIME**.

After the PRESSURE ROLLER was lifted, it is checked again if the CENTRING BARS are moved out completely. If not, the time is written into **ELAPSE TIME CO7** and the **ERROR FLAG CO** is set to 3. The function is aborted and the ERROR HANDLING is done by the FUNCTION MANAGER. The following ERROR MESSAGE is displayed:

CASSETTE CENTRING PROBLEM *53*

CO8: FUNCTION CASSETTE OUT ENDED

This is a GOOD ELAPSE TIME

At the end of FUNCTION CASSETTE OUT, the time is written into **ELAPSE TIME CO8**, no matter if the function was completed successfully or if it was aborted.

SCREEN 2:

This SCREEN displays the SLAVE PROCESSOR ELAPSE TIMES. In contrast to SCREEN 1, the ELAPSE TIME in a line do not belong to one FUNCTION, except in LINE 1

LINE 1

- **M1R...M7R : MAGAZINE 1 REACHED...MAGAZINE 7 REACHED**

This is a **GOOD ELAPSE TIME**.

When the FILM POCKET reaches the selected MAGAZINE, the time is written into the corresponding ELAPSE TIME.

LINE 2

- *MNO : MAGAZINE NOT OPENED*
- **MOP : MAGAZINE OPEN**
- **MCL : MAGAZINE CLOSED**
- *MTO : MAGAZINE COVER MOTOR TIME OUT*
- *FTO : FILM POCKET TIME OUT*
- *SCE : STEPPER MOTOR COUNT ERROR*
- *STO : STEPPER MOTOR TIME OUT*
- *SES : STEPPER MOTOR END SWITCH*
- *NT1 : SUCKER BAR NOT IN TRANSPORT POSITION 1*

MNO MAGAZINE NOT OPENED

This is a **NO-GOOD ELAPSE TIME.**

If the selected MAGAZINE LID is not opened (detected by SENSOR B27 (MCO)), the time is writen into ELAPSE TIME MNO. Control is given back to the MASTER PROCESSOR, the following WARNING MESSAGE is displayed and the FILM POCKET goes to HOME POSITION:

IS MAGAZINE CORRECTLY POSITIONED?

CASSETTE NOT LOADED

MOP MAGAZINE OPEN

This is a **GOOD ELAPSE TIME.**

The FILM POCKET goes to the selected MAGAZINE and the MAGAZINE is opened. MOTOR M6 (MAGAZINE OPENING) is turned on in forward until SENSOR B 20 (MMO) is interrupted. The time is written into **ELAPSE TIME MOP.**

MCL MAGAZINE CLOSED

This is a **GOOD ELAPSE TIME.**

The MAGAZINE is closed after the MAGAZINE SUCKER BAR is withdrawn. MOTOR M6 (MAGAZINE OPENING) is turned on in reverse, until SENSOR B 21 (MMC) is interrupted. The time is written into ELAPSE TIME MCL.

MTO MAGAZINE COVER TIMEOUT

This is a **NO-GOOD ELAPSE TIME**.

When the MAGAZINE LID is not opened within 2 seconds after it was commanded to do so a timeout occurs. This is detected with SENSOR B 27 (MCO). The time is written into **ELAPSE TIME MTO**. The FILM POCKET moves to HOME POSITION and the following ERROR MESSAGE is displayed:

FILM PICK UP PROBLEM IN MAGAZINE * A2 *

CASSETTE NOT LOADED

FTO FILM POCKET TIME OUT

This is a **NO-GOOD ELAPSE TIME**.

The MAGAZINE SUCKER BAR should be moved into the MAGAZINE (sensed by SENSOR B11 (MSI)) or to TRANSPORTPOSITION (sensed by SENSOR B12 (TP)). Motor M7 is turned on. If within the next 2 seconds neither B11 nor B12 is interrupted, a timeout occurs. The time is written into **ELAPSE TIME FTO**, control is given back to the MASTER and the following Error Message is displayed:

FILM PICK UP PROBLEM IN MAGAZINE *A3*

CASSETTE NOT LOADED ZERO POSITION NOT REACHED *82*

In this case the FILM POCKET does not go to HOME POSITION, for the position of the MAGAZINE SUCKER BAR is unknown.

THE MAGAZINE STAYS OPEN IF THE PROBLEM WAS CAUSED BY A TIMEOUT AND THE MAGAZINE SUCKER BAR WAS IN THE MAGAZINE.

SCE STEPPER MOTOR COUNT ERROR

This is a **NO-GOOD ELAPSE TIME**.

To move the FILM POCKET from one position to another, the STEPPER MOTOR receives a certain amount of pulses as calculated by the SCAN RUN. As the FILM POCKET moves up or down the REFERENCE POSITIONS are counted. They are detected by SENSOR B15 (RP). After a certain amount of pulses a 100-PULSE-WIDE-WINDOW is opened. The next REFERENCE POSITION has to be detected within this window. If it is not detected a SOFTWARE CORRECTION is turned on and the time is written into **ELAPSE TIME SCE**. A SCE HAS NO INFLUENCE ONTO THE FUNCTION OF THE ML 700.

STO STEPPER MOTOR TIME OUT

This is a **NO-GOOD ELAPSE TIME**.

There are 7 different possibilities for a STEPPER MOTOR TIME OUT

- AFTER POWER UP (SYNCHRON RUN = FILMPOCKET GOES TO HOME POSITION)

- FILM POCKET is above HOME POSITION and has to go home. In this case the FILM POCKET is transported upwards until the SENSOR B17 (UL) is interrupted. Then the direction is reversed and the FILM POCKET goes to HOME POSITION. If SENSOR B17 (UL) is not interrupted within 10 sec. after start of the FILM POCKET a time out occurs.
- FILM POCKET does not reach HOME POSITION within 10 sec. after SENSOR B17(UL) or within 10 sec. if it was below HOME POSITION, a timeout occurs.

- SCAN ROUTINE (OPTION CHANGE PARAMETER SUBOPTION “NEW”)

- CASSETTE LEVEL not reached within 17 sec.
- MAGAZINE LEVEL 7 not reached within 17 sec.
- HOME POSITION not reached within 17 sec.

- DURING A CYCLE

- Selected MAGAZINE not reached within 18 sec.
- FILM POCKET SUCKER BAR is not transported high enough to move out of the MAGAZINE. Allowed time 1 sec.

If event 1 or 2 occurs (only during Power Up) the **GREEN READY LAMP** will not be turned on. There is no ERROR or WARNING MESSAGE. If event 3, 4or 5 occurs (SCAN ROUTINE) Zeros will be displayed as REFERENCE POSITIONS. If event 6 or 7 occurs the following ERROR MESSAGE is displayed:

FILM PICK UP PROBLEM IN MAGAZINE *A5*

ZERO POSITION NOT REACHED *82*

CASSETTE NOT LOADED (B2)

Message 82 is displayed if **STO** occurs after the CASSETTE was loaded. Message B2 is displayed if **STO** occurs before the Cassette is loaded. If events 1 to 7 occur, the time is written into **ELAPSE TIME STO**.

SES STEPPER MOTOR ENDSWITCH

This is a **NO-GOOD ELAPSE TIME**.

If SENSOR UL (B17) or LL (B18) are interrupted at the wrong time e. g. during speed up or slow down of STEPPER MOTOR or before the selected MAGAZINE (except MAGAZINE 7) is reached, the time is written into **ELAPSE TIME SES**. There is no separate ERROR MESSAGE for **SES**. Therefore **STO** becomes set in addition and the ERROR MESSAGE for **STO** is displayed, and the FILM POCKET goes to HOME POSITION:

FILM PICK UP PROBLEM IN MAGAZINE * A5 *

ZERO POSITION NOT REACHED * 82 *

CASSETTE NOT LOADED

NT1 SUCKER BAR NOT IN TRANSPORT POSITION 1

This is a **NO-GOOD ELAPSE TIME**.

If the FILM POCKET has to move up or down, the MAGAZINE SUCKER BAR has to be in TRANSPORT POSITION 1 or in TRANSPORT POSITION. If not, the time is written into Elapse Time NT1. There is no Error Message, because the SLAVE PROCESSOR tries now to bring the MAGAZINE SUCKER BAR into the correct position.

LINE 3

- **SIM : SUCKER BAR IN** MAGAZINE POSITION
- **FMR : FILM REACHED**
- **TRP : TRANSPORT POSITION REACHED**
- **CLR : CASSETTE LEVEL REACHED**
- **EXP : EXCHANGE POSITION REACHED**
- **TP1 : TRANSPORT POSITION 1 REACHED**
- **SMH : STEPPER MOTOR HOME**
- **MPR : MAGAZINE REFERENCE POSITION REACHED**
- *FNR : FILM NOT REACHED*

SIM SUCKER BAR IN MAGAZINE POSITION

This is a **GOOD ELAPSE TIME**.

The MAGAZINE SUCKER BAR is moved into the MAGAZINE to pick up an unexposed FILM. When it is completely inside the MAGAZINE, SENSOR B11 (MSI) becomes interrupted the time is written into **ELAPSE TIME SIM** and MOTOR M7 is turned off.

FMR FILM REACHED

This is a **GOOD ELAPSE TIME**.

The MAGAZINE SUCKER BAR is first moved into the MAGAZINE and then it is transported downwards until SENSOR B9 (MFP) is actuated by the top FILM. The time is written into **ELAPSE TIME FMR**.

TRP TRANSPORT POSITION REACHED

This is a **GOOD ELAPSE TIME**.

After a fresh FILM is picked up the MAGAZINE SUCKER BAR moves completely out of the MAGAZINE until SENSOR B12 (TP) is interrupted. The time is written into **ELAPSE TIME TRP** and MOTOR M7 is turned off.

CLR CASSETTE LEVEL REACHED

This is a **GOOD ELAPSE TIME**.

The FILM POCKET with the unexposed FILM is transported to the CASSETTE LEVEL. As soon as SENSOR B15 (RP) is interrupted by the CASSETTE REFERENCE BRACKET the time is written into **ELAPSE TIME CLR**.

EXP EXCHANGE POSITION REACHED

This is a **GOOD ELAPSE TIME**.

The MAGAZINE SUCKER BAR pushes the unexposed FILM into the CASSETTE. When the MAGAZINE SUCKER BAR has moved in completely SENSOR B11 (MSI) is interrupted, the time is written into **ELAPSE TIME EXP** and MOTOR M7 is turned off.

TP1 TRANSPORT POSITION 1 REACHED

This is a **GOOD ELAPSE TIME**.

After the unexposed FILM is in the CASSETTE the MAGAZINE SUCKER BAR is moved out again. As soon as SENSOR B13 (TP1) is actuated the time is written into **ELAPSE TIME TP1**. It is now possible to move the FILM POCKET downwards.

SMH STEPPER MOTOR HOME

This is a **GOOD ELAPSE TIME**.

After the CASSETTE is loaded or after a cycle was aborted the FILM POCKET moves back to HOME POSITION (SENSOR B19 (HP)). The time is written into **ELAPSE TIME SMH**.

MPR MAGAZINE REFERENCE POSITION REACHED

This is a **GOOD ELAPSE TIME**.

When the MAGAZINE SUCKER BAR is in the CASSETTE, it is lowered according to the value of **PARAMETER LOWER FILM POCKET**. Before it leaves the CASSETTE it moves upwards until SENSOR B15 (RP) is interrupted by the CASSETTE LEVEL BRACKET. The time is written into **ELAPSE TIME RPR** and Motor M7 is turned on.

FNR FILM NOT REACHED

This is a **NO-GOOD ELAPSE TIME**.

To pick up an unexposed FILM the MAGAZINE SUCKER BAR moves into the selected MAGAZINE. Then the FILM POCKET moves down for a maximum of 192 steps to find the top FILM. If during these 192 steps SENSOR B9 (MFP) is not actuated the time is written into **ELAPSE TIME FNR**, the FILM POCKET goes to HOME POSITION and the following ERROR MESSAGE is displayed:

FILM PICK UP PROBLEM IN MAGAZINE *B4*
CASSETTE NOT LOADED

LINE 4

- **MAE : MAGAZINE ALMOST EMPTY**
- **MNE : MAGAZINE NEXT TIME EMPTY**
- *AT2 : ATTEMPT 2*
- *AT3 : ATTEMPT 3*
- *FLT : FILM LOST*
- *FL3 : FILM LOST 3 TIMES*
- *DFD : DOUBLE FILM DETECTED*
- *3DD : DOUBLE FILM 3 TIMES DETECTED*
- *MWE : MAGAZINE WAS EMPTY*
- *FDT : FILM LOST DURING TRANSPORT*

MAE MAGAZINE ALMOST EMPTY

If there are appr. 8 FILMS or less in a MAGAZINE when the MAGAZINE SUCKER BAR picks up an unexposed FILM, SENSOR B16 (MAE) is interrupted and the time is written into **ELAPSE TIME MAE.**

MNE MAGAZINE NEXT TIME EMPTY

After the last FILM is taken out of the MAGAZINE the time is written into **ELAPSE TIME MNE**. On the DISPLAY the MAGAZINE is indicated as **EMPTY**.

AT2 ATTEMPT 2

This is a **NO-GOOD ELAPSE TIME**.

If the first attempt to take out an unexposed FILM from the MAGAZINE was not successful the time is written into **ELAPSE TIME AT2** and a second attempt is started. In addition there will be a time in **FLT** or in **DFD**.

AT3 ATTEMPT 3

This is a **NO-GOOD ELAPSE TIME**.

If the second attempt to take out an unexposed FILM from the MAGAZINE was not successful the time is written into **ELAPSE TIME AT3** and a third attempt is started. In addition there will be times in **AT2** and in **FLT** or **FL3** or **3DD** or **NFA**.

FLT FILM LOST

This is a **NO-GOOD ELAPSE TIME**.

The MAGAZINE SUCKER BAR picks up an unexposed FILM and transports it into the FILM POCKET. If SENSOR B9 (MFP) becomes deactuated, the time is written into **ELAPSE TIME FLT** and another attempt is started.

FL3 FILM LOST 3 TIMES

This is a **NO-GOOD ELAPSE TIME**.

If the FILM is lost 3 times the time is written into **ELAPSE TIME FL3**. The FILM POCKET moves to HOME POSITION and the following WARNING MESSAGE is displayed:

RIFFLE FILM IN MAGAZINE
CASSETTE NOT LOADED

DFD DOUBLE FILM DETECTED

This is a **NO-GOOD ELAPSE TIME**.

The SENSOR B14 (DFS) detects if 2 unexposed FILMS are picked up by the MAGAZINE SUCKER BAR. The time is written into **ELAPSE TIME DFD**, the FILMS are brought back into the MAGAZINE and a new attempt is started.

3DD DOUBLE FILM DETECTED 3 TIMES

This is a **NO-GOOD ELAPSE TIME**.

If DOUBLE FILM is detected 3 times, the time is written into **ELAPSE TIME 3DD**, the FILMS are transported back into the Magazine, the FILM POCKET moves to HOME POSITION and the following WARNING MESSAGE is displayed:

RIFFLE FILM IN MAGAZINE

CASSETTE NOT LOADED

MWE MAGAZINE WAS EMPTY

If an empty MAGAZINE is accessed the time is written into **ELAPSE TIME MWE** and the following Warning Message is displayed:

MAGAZINE NOT READY

CASSETTE NOT LOADED

FDT FILM LOST DURING TRANSPORT

This is a **NO-GOOD ELAPSE TIME**.

An unexposed FILM is picked up in a MAGAZINE and transported to the CASSETTE. If during this transport SENSOR B9 (MFP) becomes deactuated (= FILM lost) the time is written into **ELAPSE TIME FDT**. However this has normally no effect on the function of the ML 700, because the FILM is pushed into the CASSETTE by the MAGAZINE SUCKER BAR BLOW PIPES.

LINE 5

- *FSS : FILM STICKS TO SUCKER*
- *NFA : NO FILM TAKEN FROM MAG(A)*
- *NFS : NO FILM TAKEN FROM MAG(S)*

FSS FILM STICKS TO SUCKER

This is a **NO-GOOD ELAPSE TIME**.

After the FILM POCKET is at the CASSETTE LEVEL and the MAGAZINE SUCKER BAR is in the EXCHANGE POSITION, air is blown into the MAGAZINE SUCKERS to separate the Film from the SUCKERS . AIr is turned on for 1 second up to 10 times. If during this time the SENSOR B9 (MFP) is not actuated the time is written into **ELAPSE TIME FSS** and the following ERROR MESSAGE is displayed:

FILM PICK UP PROBLEM IN MAGAZINE *B1*

CASSETTE NOT LOADED

NFA NO FILM TAKEN FROM MAGAZINE (A)

This is a **NO-GOOD ELAPSE TIME**.

If a cycle is aborted due to a problem in FILM POCKET CONTROL (for example STO or 3DD) the time is written into **ELAPSE TIME NFA** and the additional MESSAGE

CASSETTE NOT LOADED

is displayed.

NFS NO FILM TAKEN FROM MAGAZINE (S)

This is a **NO-GOOD ELAPSE TIME**.

If during pick up of unexposed FILM the sum of FLT and DFD becomes 3 the time is written into **ELAPSE TIME NFS** and the following WARNING MESSAGE is displayed:

CASSETTE NOT LOADED

RE-ENTER CASSETTE, PLEASE

The Film Pocket moves to Home Position.

ERROR FLAGS

The ERROR FLAGS are displayed in LINE 7 on SCREEN 1 and SCREEN 2. On both SCREENS the information of LINE 7 is the same.
The INDICATOR A to R just give the position of the ERROR FLAG in LINE 7. If there is just a single letter, only 1 digit is used for the ERROR FLAG. If there are 2 letters (e.g. GG or HH), 2 digits are used for the FLAG.

LINE 7 A B C D E F GG HH I K L M N O P Q R

A = Fi : ERROR FLAG FUNCTION CASSETTE IN

- **Fi = 0 : OK. THE FUNCTION CASSETTE IN WAS COMPLETED WITHOUT ANY PROBLEMS.**
- Fi = 1 : PRESSURE ROLLER NOT LIFTED (BY CASSETTE)

When the CASSETTE is fed into the ML700 the metal edge triggers the INDUCTIVE SENSORS. The FUNCTION MANAGER starts now the FUNCTION CASSETTE IN. The CASSETTE is transported into the ML700 and lifts the PRESSURE ROLLER. This in turn will deactuate SWITCH S8. If this does not happen during the next 10 sec. the time is written into **ELAPSE TIME Fi1** and the **ERROR FLAG Fi** is set to **1**. Then the FUNCTION CASSETTE IN is aborted and the FUNCTION MANAGER starts the ERROR HANDLING. In this case the following WARNING MESSAGE is displayed :

INSERT CASSETTE LATCH FIRST AND UPPERMOST

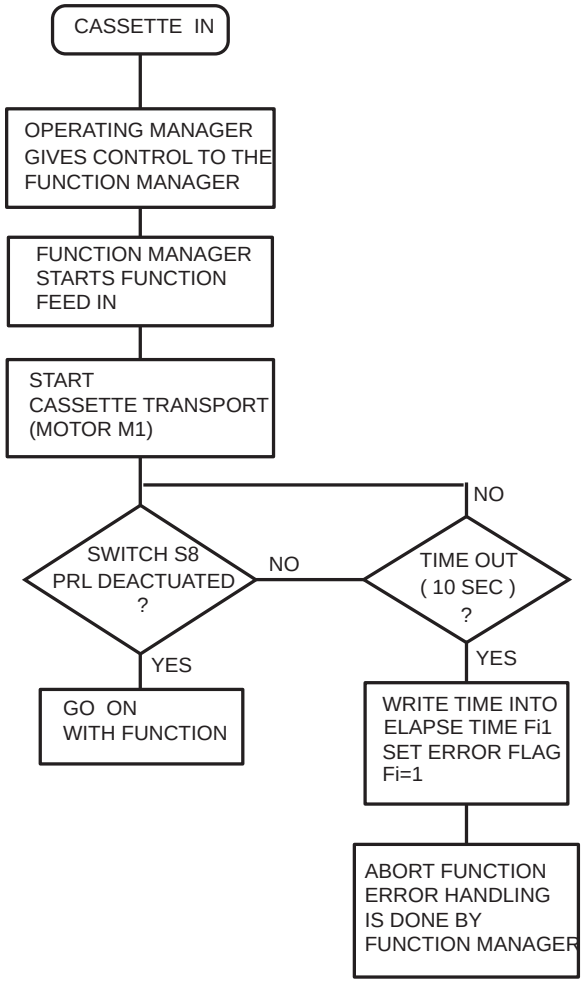


figure 2-18

- Fi = 2 : PRESSURE ROLLER NOT LIFTED (BY MOTOR)

3.5 sec. after Fi2 the MOTOR M3 (CASSETTE OPENING) is started. If within the next second SWITCH S5 (PRU) is not actuated, the time is written into ELAPSE TIME Fi3 and the **ERROR FLAG FI** is set to **2**. Then the FUNCTION CASSETTE IN is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the ERROR MESSAGE

CASSETTE ENTRY PROBLEM

is displayed.

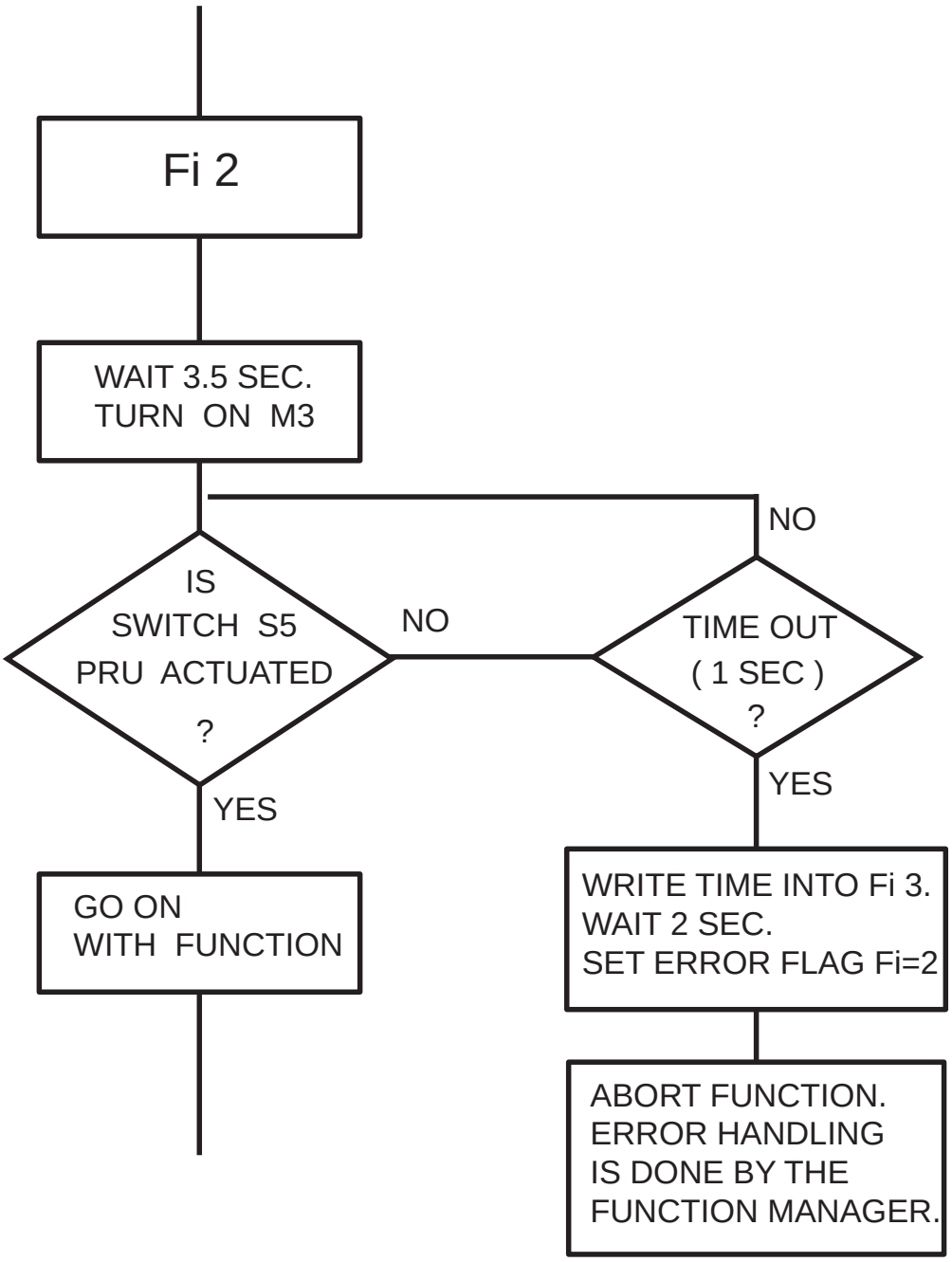


figure 2-19

- Fi = 3 : CASSETTE DID NOT REACH END SWITCH

After SWITCH S5 (PRU) is actuated the MOTOR M3 is stopped. Within the next 5 sec. SWITCH S13 (CES) has to be actuated by the CASSETTE (the CASSETTE reached the CASSETTE END SWITCH). If the CASSETTE did not reach the END SWITCH, the time is written into **ELAPSE TIME Fi4** and the **ERROR FLAG Fi** is set to **3.** Then the FUNCTION is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the following WARNING MESSAGE is displayed:

INSERT CASSETTE LATCH FIRST AND UPPERMOST

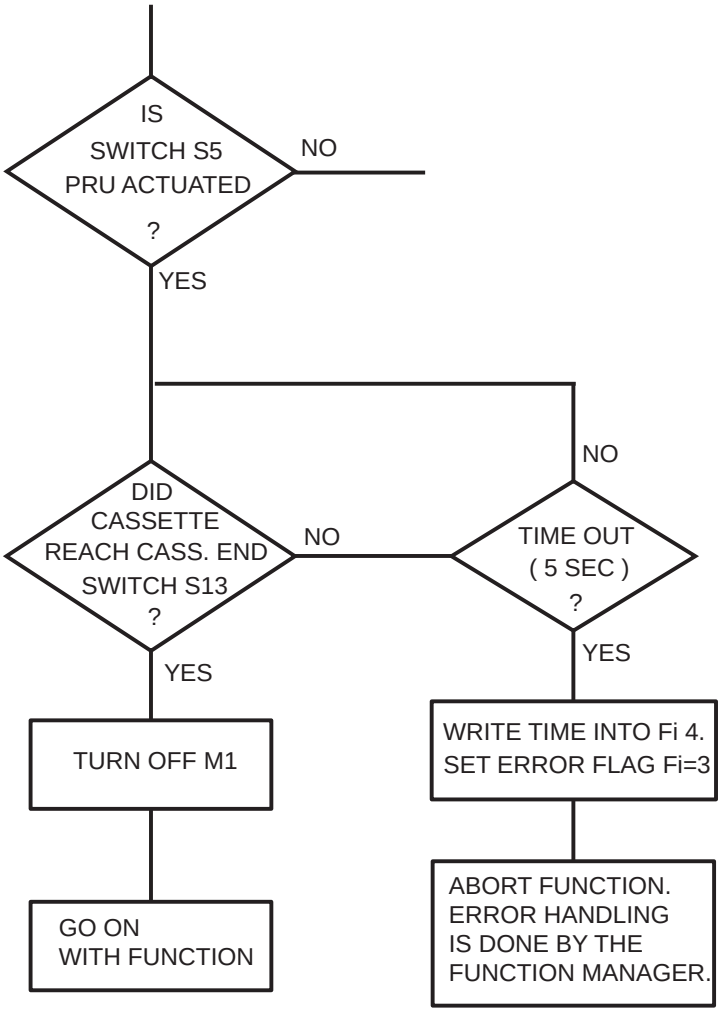


figure 2-20

- **Fi = 4 : CASSETTE NOT CENTRED**

After the Cassette reached the END SWITCH S13 (CES) it must be centred. First the CENTRING BARS are moved out totally. This ensures, that the correct CASSETTE LENGTH is detected when the CASSETTE becomes centred. If at the start of this cycle S9 (CCO) is not actuated the **Error Flag FI** is set to **4** and the Function is aborted. If S9 (CCO) becomes actuated,

the CENTRING BARS are moved in. The ML tries 2 times to center the CASSETTE. If S14/15 (CCS) are not actuated in the given time. The **ERROR FLAG FI** is set to **4**, the Function is aborted, and Error Handling is done by the Function Manager and the following WARNING MESSAGE is displayed:

CASSETTE CENTRING PROBLEM

- Fi = 5 : CASSETTE DID NOT REACH END SWITCH AFTER SECOND INFEED

During CASSETTE CENTRING it is possible, that the CASSETTE is moved away from ENDSWITCH S13 (CES). In this case the CASSETTE TRANSPORT MOTOR M1 is turned on again and the CASSETTE is transported to S13 (CES). If S13 is not actuated within 5 seconds the Function is aborted, the **ERROR FLAG Fi** is set to **5**, the Error Handling is done by the Function Manager and the following WARNING MESSAGE is displayed:

PLEASE RE-ENTER CASSETTE

- Fi = 6 : CENTRING BARS TO CLOSE TO THE CENTER

This problem occurs if SWITCH S 10 (CCI) is actuated before SWITCH S 14/15 (CCS) or if a CASSETTE LENGTH COUNT of 89 occurs.This means the CENTRING BARS moved in completely, if for example CASSETTE shorter then 24 cm was used. The **ERROR FLAG Fi** is set to **6** and the following WARNING MESSAGE is displayed:

INSERT CASSETTE LATCH FIRST AND UPPERMOST

LINE 7 A **B** C D E F GG HH I K L M N O P Q R

B = OP : ERROR FLAG FUNCTION OPEN CASSETTE

- **OP = 0 : OK**
- OP = 1 : not used
- OP = 2 : OPENER DID NOT REACH END POSITION

After the FUNCTION OPEN CASSETTE is called the CASSETTE OPENER MOTOR M3 is started. Within the next 2.5 sec. SWITCH S4 (OC) has to be actuated. If not, the time is written into **ELAPSE TIME OP2** and the **ERROR FLAG OP** is set to **2**. Then the FUNCTION is aborted, the FUNCTION MANAGER starts the ERROR HANDLING and the ERROR MESSAGE

CASSETTE OPENING PROBLEM* 22 *

is displayed.

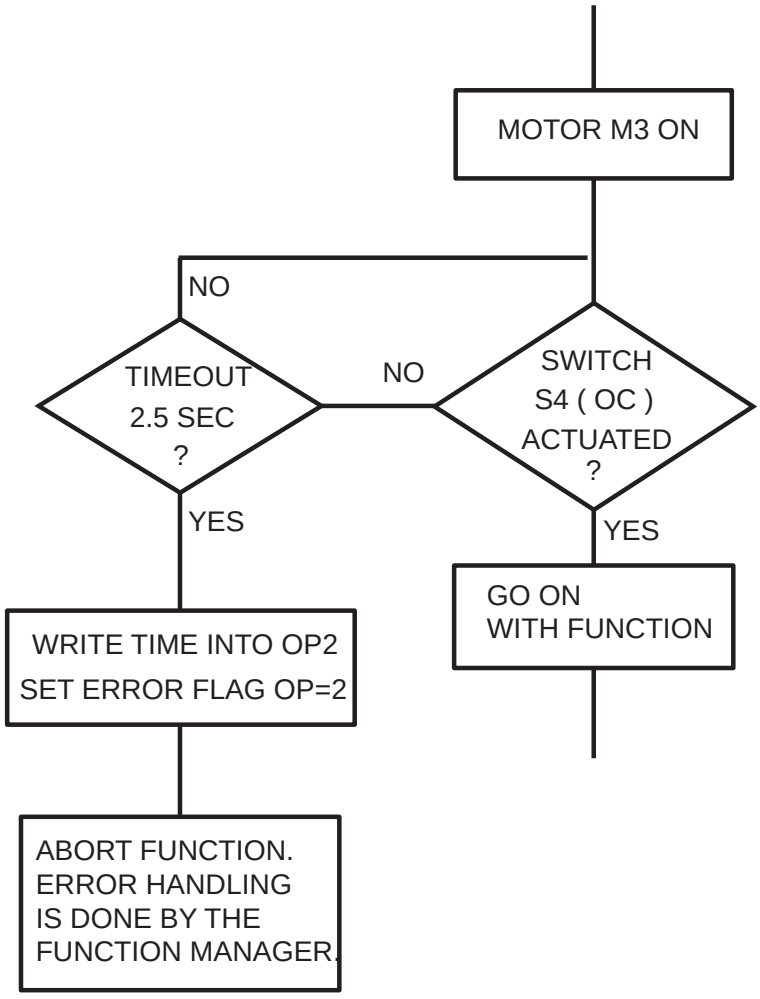


figure 2-21

- OP = 3 : CASSETTE IS NOT OPENED

After S4 (OC) is actuated, MOTOR M3 is turned off. Then SWITCH S1 (CO) is monitored to see if the CASSETTE LID is lifted up. If S1 is not actuated the **ERROR FLAG OP** is set to **3**. The Error Handling is done by the Function Manager and the following WARNING MESSAGE is displayed:

CASSETTE OPENING PROBLEM

INSERT CASSETTE LATCH FIRST AND UPPERMOST

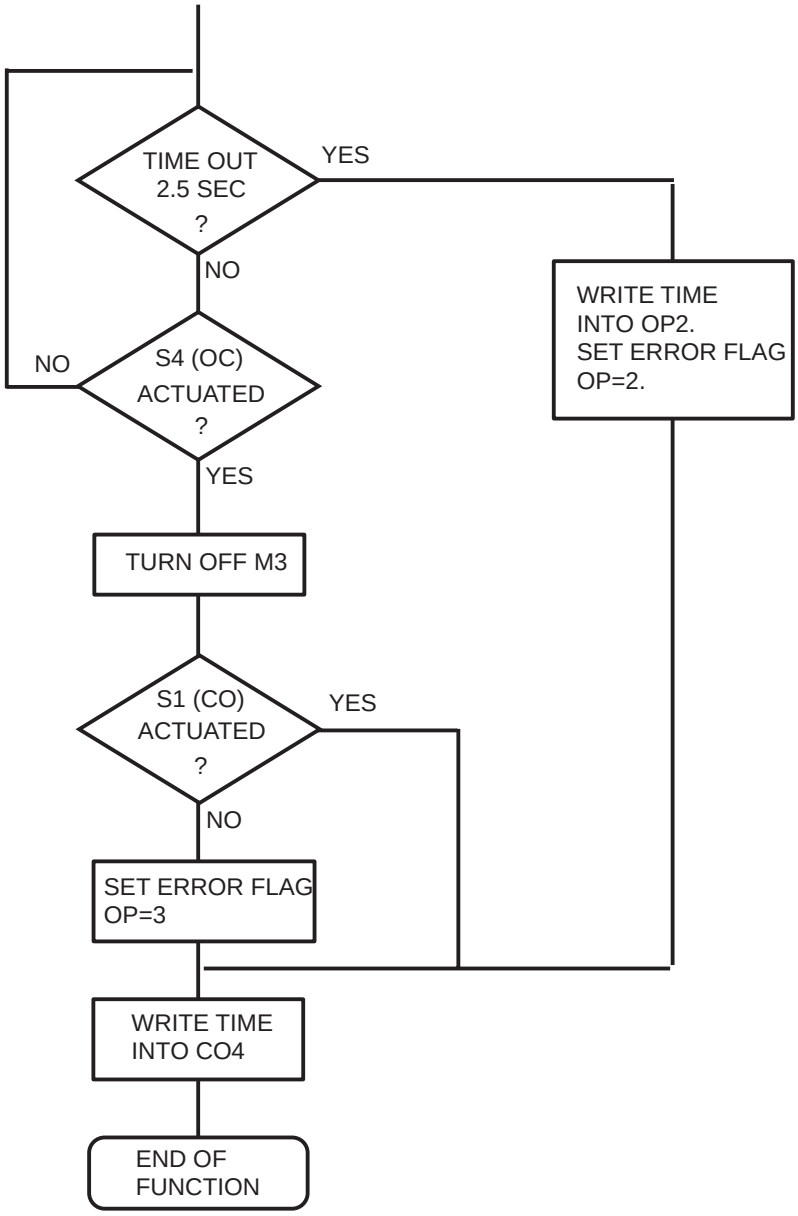


figure 2-22

LINE 7 A B **C** D E F GG HH I K L M N O P Q R

C = FPD : FILM PRESENCE DETECTOR

- **FPD = 0 : OK**
- FPD = 1 : 2 FILMS IN CASSETTE (TOP+BOTTOM)

One FILM is covering the REFLECTIVE STICKER TOP and one FILM is covering the REFLECTIVE STICKER BOTTOM. If there are 2 FILMS at the bottom, the ML 700 will treat them as one.The following WARNING MESSAGE is displayed:

EXPOSED FILM NOT UNLOADED
CHECK CASSETTE IN DARKROOM
REENTER CASSETTE PLEASE

- FPD = 2 : THERE IS NO FILM IN THE CASSETTE

The following WARNING MESSAGE is displayed:

CASSETTE WAS EMPTY

- FPD = 3 : A FILM STICKS TO THE LID SCREEN OF THE CASSETTE

The following WARNING MESSAGE is displayed:

FILM ADHERES TO UPPER SCREEN
PLEASE RE-ENTER CASSETTE

- **FPD = 4 —- THE FILM PRESENCE DETECTORS ARE SWITCHED OFF.**

LINE 7 A B C **D** E F GG HH I K L M N O P Q R

D = UN : ERROR FLAG UNLOAD CASSETTE

- **UN = 0 : OK**
- UN = 1 : FILM JAM IN TAKEOUT MECHANISM

At the beginning of FUNCTION UNLOAD it is tested if the previous FILM is still between CASSETTE and TUNNEL EXIT. If SENSOR B6(FOC) is still covered by the previous FILM a timeout occurs after 2 seconds,the **ERROR FLAG UN** is set to **1** and the following WARNING MESSAGE is displayed:

FILM PICK UP PROBLEM IN CASSETTE

- UN = 2 : FILM JAM AT TUNNEL ENTRY

At the begining of the Function Unload it is tested if the previous FILM is still between CASSETTE and TUNNEL EXIT. In this case SENSOR B8 (TSF) is covered by the FILM. The **ERROR FLAG UN** is set to **2**, the Function Unload Cassette is aborted, the Error Handling is done by the Function Manager and the following WARNING MESSAGE is displayed:

FILM JAMMED IN TUNNEL
EXPOSED FILM NOT UNLOADED

- UN = 3 : FILM JAM AT TUNNEL EXIT

At the beginning of the Function Unload it is tested if the previous FILM is still at the TUNNEL EXIT. This means the SENSOR B7 (TSR) is still covered by a FILM. In this case the **ERROR FLAG UN** is set to **3**, the Function Unload Cassette is aborted, the Error

Handling is done by the Function Manager and the following WARNING MESSAGE is displayed:

FILM JAMMED IN TUNNEL

- UN = 4 —- NOT USED

- UN = 5 —- SUCKER BAR IN CASSETTE

After it is ensured that the path to the PROCESSOR is free of obstacles, the CASSETTE SUCKERBAR MOTOR M4 is turned on and the SUCKER BAR is moved into the CASSETTE. Within 2 seconds SWITCH S11 (CSI) has to be actuated. If not, a timeout occurs and the **ERROR FLAG UN** is set to **5.** Then the FUNCTION UNLOAD CASSETTE is aborted, the Error Handling is done by the Function Manager and the following ERROR MESSAGE is displayed:

FILM PICK UP PROBLEM IN CASSETTE * 75 *

- **UN = 6 —- ENDSWITCH UNLOAD REACHED TOO EARLY**

If the CASSETTE SUCKER BAR is moved out and actuates S12 (CSO) SENSOR B6 (FOC) should be interrupted by the LEADING EDGE of the exposed FILM. If B6 is not interrupted the **ERROR FLAG UN** is set to **6.**

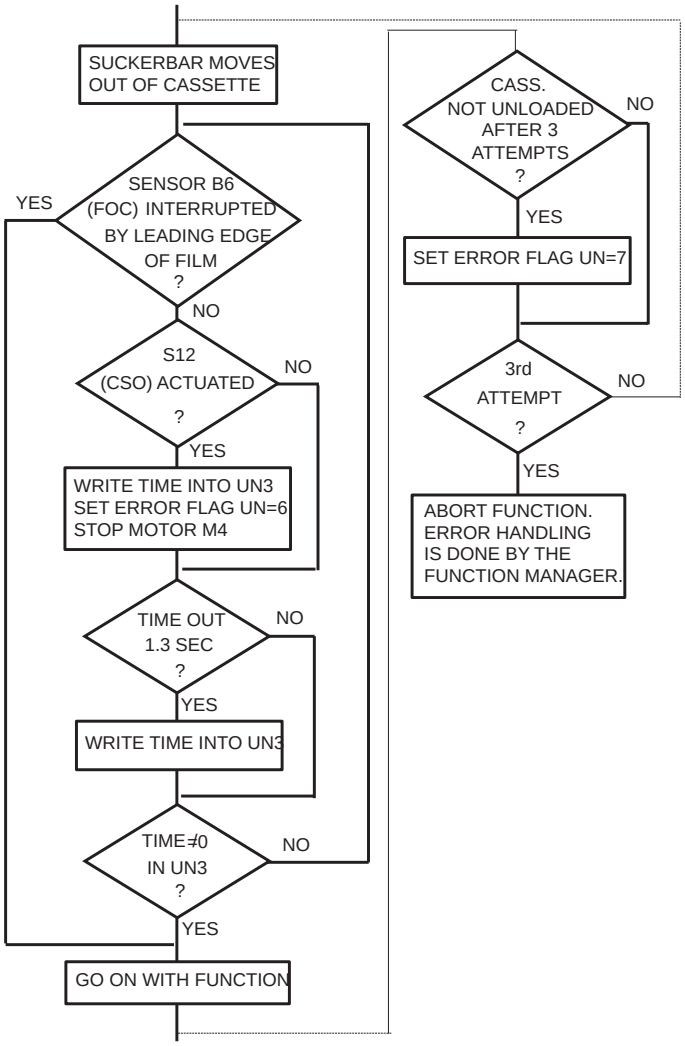


figure 2-23

- UN = 7 : 3 UNSUCCESSFUL ATTEMPS

The ML 700 tries 3 times to take a FILM out of the CASSETTE. The amount of unsuccessful attempts are counted with a LOOP COUNTER. If this LOOP COUNTER reaches a count of 4 (= 3 unsuccessful attemps) the **ERROR FLAG** is set to **7**. See flowchart for UN = 6 on the previous page. The following WARNING MESSAGE is displayed:

EXPOSED FILM NOT UNLOADED

PLEASE RE-ENTER CASSETTE

- UN = 8 : SUCKER BAR NOT IN REAR POSITION

The CASSETTE SUCKER BAR picks up the FILM and is then transported out of the CASSETTE. The LEADING EDGE of the FILM is detected by SENSOR B6 (FOC) and the PARAMETER VACUUM OFF TIME is started. Then the VACUUM is turned off. If during the next second SWITCH S12 (CSO) is not actuated the **ERROR FLAG UN** is set to **8**, the Function is aborted and the Error Handling is done by the Function Manager. The following ERROR MESSAGE is displayed:

FILM PICK UP PROBLEM IN CASSETTE * 78 *

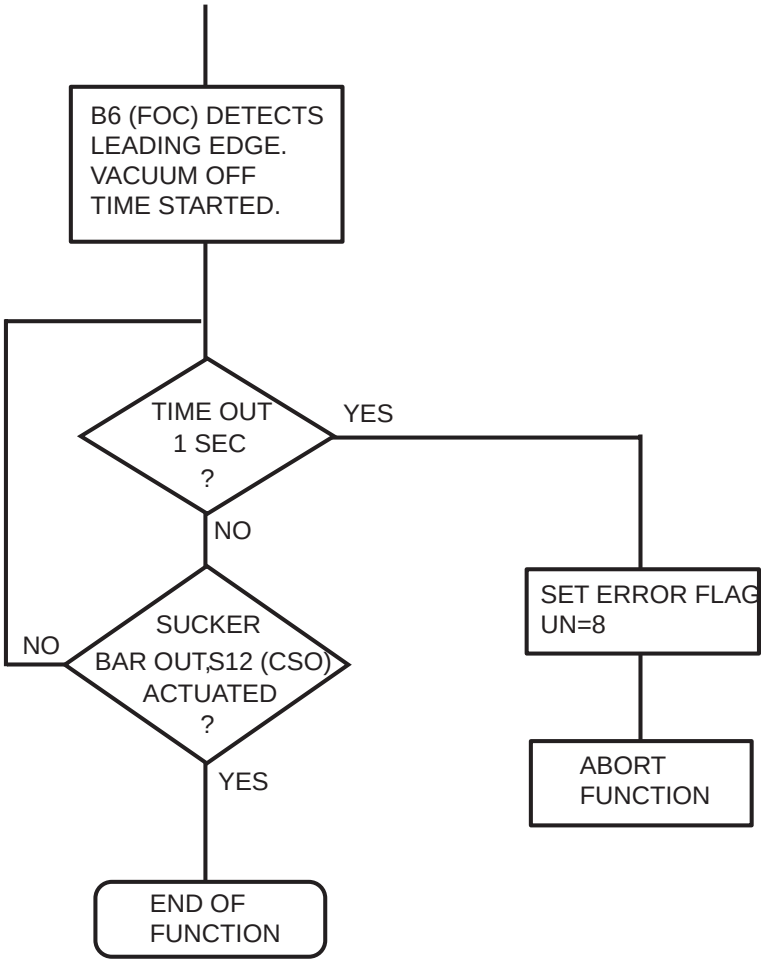


figure 2-24

- UN = 9 : DRIVE BELT TO TUNNEL IS BROKEN

After the TRAILING EDGE of the FILM is sensed by SENSOR B6 (FOC) the PROCESSOR START PULSE becomes active for 1.5 sec. Then SENSOR B8 (TSF) is waiting for the FILM. The FILM has to reach this SENSOR within 2.5 sec. If not the **ERROR FLAG UN** is set to **9**, the Function Unload Cassette is aborted, the Error Handling is done by the Function Manager and the following WARNING MESSAGE is displayed:

FILM TRANSPORT PROBLEM IN TUNNEL

CHECK CASSETTE IN DARKROOM

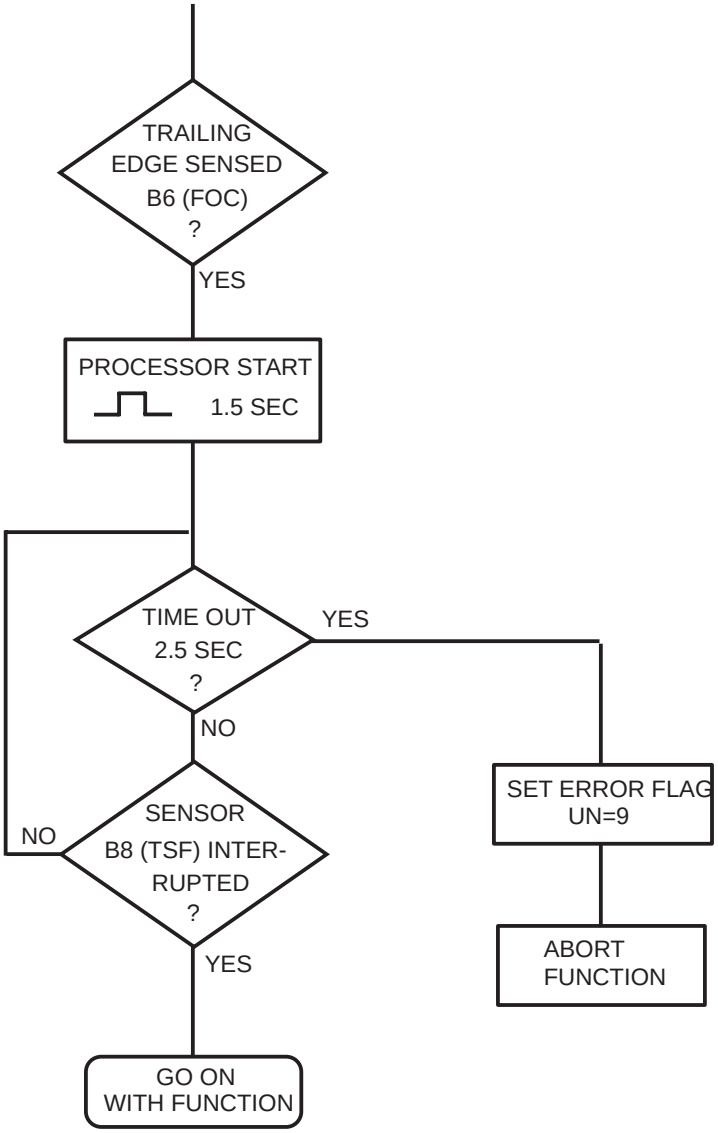


figure 2-25

- UN = A : SUCKER BAR NOT PULLED BACK AFTER 3 ATTEMPTS

The ML 700 tries up to 3 times to take the FILM out of the CASSETTE. If after the third attempt the SWITCH S12 (CSO) is not actuated (this means the SUCKER BAR is still in the CASSETTE) the **ERROR FLAG UN** is set to **A**, the FUNCTION UNLOAD CASSETTE is aborted , the Error Handling is done by the Function Manager and the following ERROR MESSAGE is displayed:

FILM PICK UP PROBLEM IN CASSETTE * 7A *

- UN = B : FILM TRAILING EDGE NOT RECOGNIZED

After the CASSETTE SUCKER BAR is completely moved out of the CASSETTE (SWITCH S12 (CSO) actuated) SENSOR B6 (FOC) looks for the TRAILING EDGE of the FILM. If it is not seen during the next 2 seconds **ERROR FLAG UN** is set to **B**, the Function Unload Cassette is aborted, the Error Handling is done by the Function Manager and the following ERROR MESSAGE is displayed:

FIM PICK UP PROBLEM IN CASSETTE* 7B *

LINE 7 A B C D **E** F GG HH I K L M N O P Q R

E = CL : ERROR FLAG FUNCTION CLOSE CASSETTE

- **CL = 0 : ok**
- CL = 1 NOT USED
- CL = 2 END SWITCH CLOSING MECHANISM NOT ACTUATED. If there was a timeout (CL = 1) SWITCH S4 (OC) is checked to see if the movement of the SWITCHING SHAFT was started. If S4 is still actuated the **ERROR FLAG CL** is set to **2**, the Function Close Cassette is aborted , the Error Handling is done by the Function Manager and the following ERROR MESSAGE is displayed:

  CASSETTE IS OPEN * 42 *

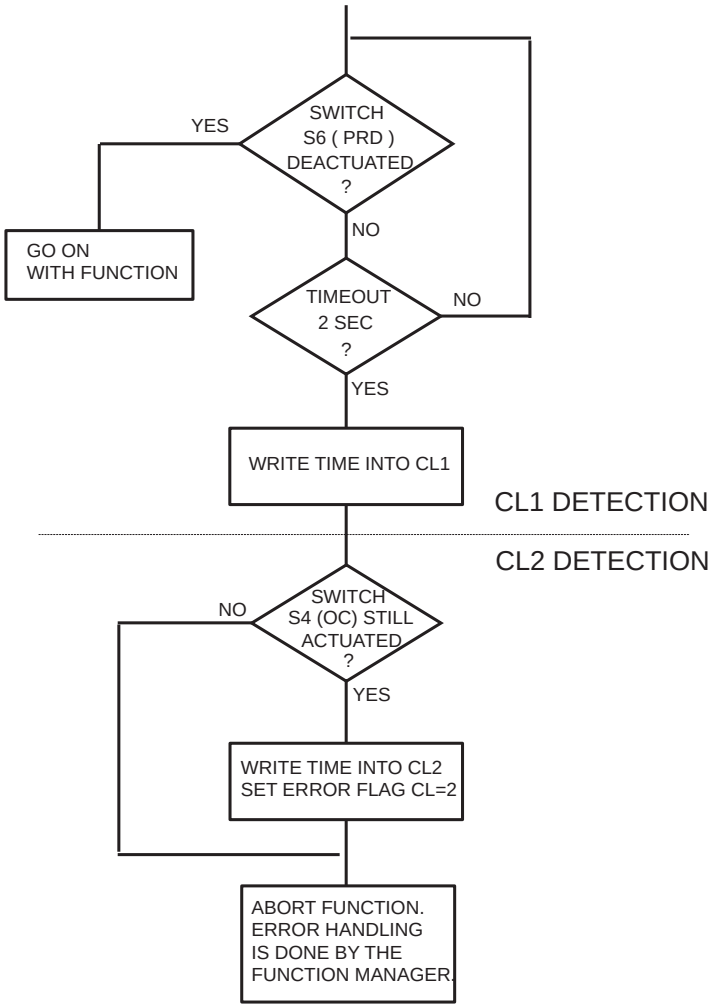


figure 2-26

LINE 7 A B C D E **F** GG HH I K L M N O P Q R

F = CO : ERROR FLAG FUNCTION CASSETTE OUT

- **CO = 0 : OK**
- **CO = 1 : PRESSURE ROLLER NOT LIFTED (BY CASSETTE)**

The CENTRING BARS are moved out and the CASSETTE BELT MOTOR M1 is started. Within the next 1.5 sec SWITCH S8 (PRL) has to be deactuated. This means the PRESSURE ROLLER is lifted by the CASSETTE. If a timeout occurs the time is written into **ELAPSE TIME CO2** and **ERROR FLAG CO** is set to **1**. The following WARNING MESSAGE is displayed:

CASSETTE TRANSPORT PROBLEM
OPEN COVER OF ML 700
EXTRACT CASSETTE MANUALLY
CHECK CASSETTE LATCH
CAUTION FILM IS UNUSABLE

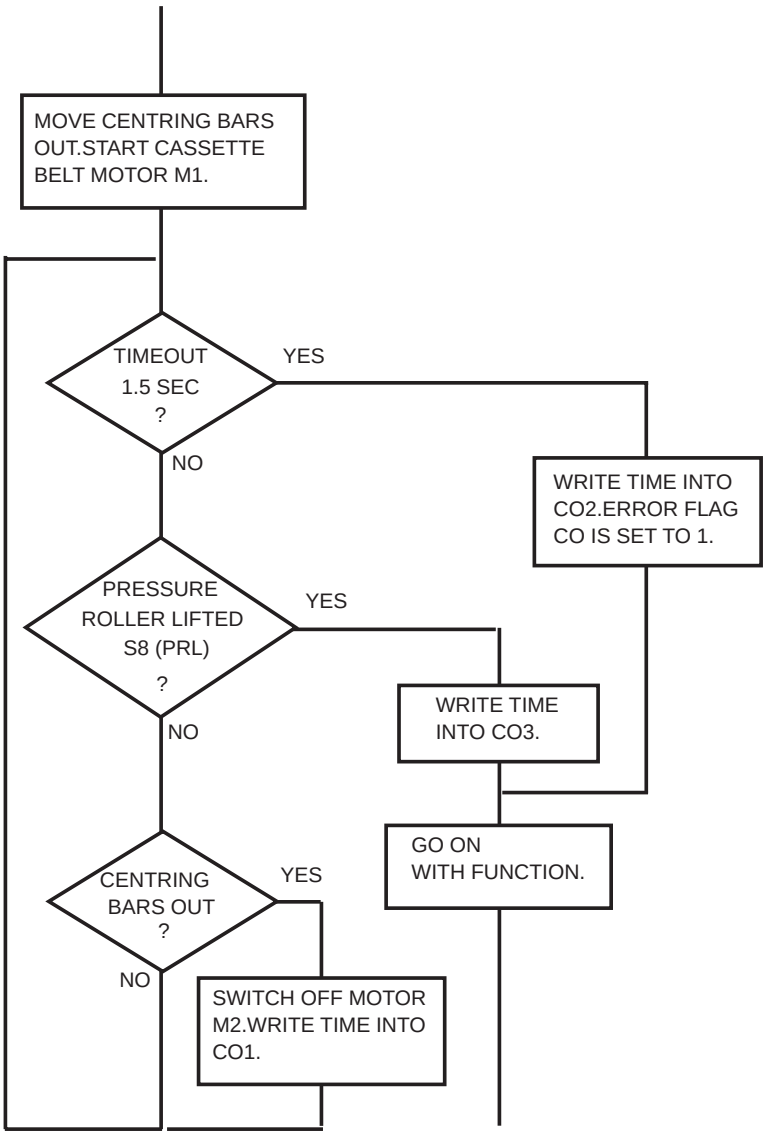


figure 2-27

- CO = 2 : PRESSURE ROLLER NOT LIFTED BY MOTOR

To be able to pull the CASSETTE out easily the PRESSURE ROLLER is lifted completely. This is done by MOTOR M3. See **ELAPSE TIME CO4**. If SWITCH S5 (PRU) is not actuated within the next 1.5 sec. The time is written into **ELAPSE TIME CO6** and the **ERROR FLAG CO** is set to **2**. The FUNCTION is aborted and the ERROR HANDLING is done by the Function Manager. The following ERROR MESSAGE is displayed:

CASSETTE TRANSPORT PROBLEM * 52 *

- CO = 3 : CENTRING BARS NOT OPENED

After the PRESSURE ROLLER was lifted, it is checked again if the CENTRING BARS are moved out completely. If not the time is written into **ELAPSE TIME CO7** and the **ERROR FLAG CO** is set to **3**. The FUNCTION is aborted and the ERROR HANDLING is done by the FUNCTION MANAGER. The following ERROR MESSAGE is displayed:

CASSETTE CENTRING PROBLEM * 53 *

- CO = 4 : PRESSURE ROLLER NOT LOWERED BY MOTOR

After the CASSETTE is completely pulled out of the ML 700 (metal edge recognized by the INDUCTIVE SENSORS) the PRESSURE ROLLER has to be lowered by MOTOR M3. If SWITCH S6 (PRD) is not deactuated within the next 0.5 seconds **ERROR FLAG CO** is set to **4,** the Function is aborted, the Error Handling is done by the Function Manager and the following ERROR MESSAGE is displayed:

CASSETTE TRANSPORT PROBLEM * 54 *

LINE 7 A B C D E F **GG** HH I K L M N O P Q R

GG = CH : CASSETTE LENGTH

- CH = 81...88 : NUMBER OF COUNTPULSES + 81

When a CASSETTE is centred, pulses are detected by the SENSOR B1 (CS). The result is then displayed as CH.

- CH = 89 : COUNT FAILURE

If more pulses as allowed are counted, 89 will be displayed. This happens for example when a CASSETTE shorter than 24 cm is fed in.

LINE 7 A B C D E F GG **HH** I K L M N O P Q R

HH = CD : CASSETTE CODE

The CASSETTE WIDTH is sensed by SWITCHES S2 (CW0) and S3 (CW1). In addition to this the SENSORS CT2 (CASSETTE TYPE 2) and FPDB (FILM PRESENCE DETECTOR BOTTOM) are used to detect Type 2 and MAMMO CASSETTES. This information is combined with the CASSETTE LENGTH PULSES (CH 81 ... 88). This gives the CASSETTE CODE and is displayed in CD.

- CD = 0 : —-
- CD = 1 : 18 x 24 cm
- CD = 2 : 24 x 24 cm
- CD = 3 : 8 x 10 inch V
- CD = 4 : 35 x 35 cm
- CD = 5 : 8 x 10 inch

- CD = 6 : 30 x 35 cm
- CD = 7 : 11 x 14 inch V
- CD = 8 : 18 x 24 cm M
- CD = 9 : 18 x 43 cm
- CD = 10 : 24 x 30 cm
- CD = 11 : 24 x 30 cm M
- CD = 12 : 35 x 43 cm
- CD = 13 : 20 x 40 cm
- CD = 14 : 30 x 40 cm
- CD = 15 : —-
- CD = 16 : —-
- CD = 17 : 18 x 24 cm #2
- CD = 18 : 24 x 24 cm #2
- CD = 19 : 8 x 10 inch #2 V
- CD = 20 : 35 x 35 cm #2
- CD = 21 : 8 x 10 inch #2
- CD = 22 : 30 x 35 cm #2
- CD = 23 : 11 x 14 inch #2 V
- CD = 24 : 18 x 24 cm #2 M
- CD = 25 : 18 x 43 cm #2
- CD = 26 : 24 x 30 cm #2
- CD = 27 : 24 x 30 cm #2 M
- CD = 28 : 35 x 43 cm #2
- CD = 29 : 20 x 40 cm #2
- CD = 30 : 30 x 40 cm #2

LINE 7 A B C D E F GG HH **I** K L M N O P Q R

I = CRT FLAG

- **N : Normal**. A CASSETTE other than CRT (VIDEO FILM HOLDER) was used
- **Y : A CRT CASSETTE was used.**

LINE 7 A B C D E F GG HH I **K** L M N O P Q R

K = MAMMO FLAG

- **N : Normal**. A CASSETTE other then MAMMO was used
- **Y : A MAMMO CASSETTE was used**

LINE 7 A B C D E F GG HH I K **L** M N O P Q R

- L = SM : SELECTED MAGAZINE 1...7
  INDICATES WHICH MAGAZINE POSITION WAS SELECTED DURING THE LAST CYCLE

LINE 7 A B C D E F GG HH I K L **M** N O P Q R

M = POWER FAIL FLAG

- **0 : OK**
- 1 : POWER DOWN WHEN NOT IN HOME POSITION

LINE 7 A B C D E F GG HH I K L M **N** O P Q R

N = MSU : MAGAZINE SERIAL UNLOAD

- **MSU = 0 : normal**
- MSU = 1 : “C” WAS PRESSED. This means a SERIAL UNLOAD CYCLE was aborted.
- MSU = 2 : A MAGAZINE WAS TAKEN OUT, BUT NOT PUT IN AGAIN

LINE 7 A B C D E F GG HH I K L M N **O** P Q R

O = SSU : SELECTED MAGAZINE SERIAL UNLOAD

- 1...7 : SELECTED MAGAZINE POSITION for SERIAL UNLOAD

LINE 7 A B C D E F GG HH I K L M N O **P** Q R

P = SCAN FLAG

- **SCAN = 0 : OK**
- SCAN = 1 : The SCAN ROUTINE could not calculate the amount of STEPS between the various MAGAZINE REFERENCE POSITIONS (Function NEW (2) Screen 1 in Option 2 Change Parameters).

LINE 7 A B C D E F GG HH I K L M N O P **Q** R

Q = TE : TRANSMITT ERROR

- **TE = 0 : OK**
- TE = 1 : A TIME OUT occured when transmitting data from MASTER to SLAVE. The cycle becomes aborted.

LINE 7 A B C D E F GG HH I K L M N O P Q **R**

R = RE : RECEIVE ERROR

- **RE = 0 :OK**
- RE = 1 : A TIME OUT occured when transmitting data from slave to master. The cycle becomes aborted.

LINE 8, DISPLAY SCREEN 1 AND 2:

- XXXXXXXX CYCLE COUNTER

CHAPTER 3

MAIN MENU

The following Menu is displayed after passing DISPLAY SCREEN 1 and 2.

- **1 CHANGE TIME**
- **2 CHANGE PARAMETERS**
- **3 CLEAR STATISTICS**
- **4 QUICK OPERATION**
- **5 PRINT STATUS REPORT**
- **6 TEST SENSORS**
- **7 ENTER TEST MODE**
- **8 BACK TO MAIN MENU**

To select an option key in the corresponding number.

OPTION 1 CHANGE TIME

1 YEAR
2 MONTH
3 DAY DOW
- DOW = DAY OF WEEK
- 1 = MONDAY
- 2 = TUESDAY
- 3 = WEDNESDAY
- 4 = THURSDAY
- 5 = FRIDAY
- 6 = SATURDAY
- 7 = SUNDAY .....

4 HOURS
5 MINUTES
6 SECONDS
7 START
8 BACK

To make any change, press S2 on PCB A0 and hold it pressed. Then select 1...6, and key in the correct numbers.

Use always the correct amount of digits.

For example:

Hours is 12 should be 02

press 402 but not 42

Press #7. This starts the clock.

Release S1 and press #8.

OPTION 2 CHANGE PARAMETERS

Screen 1

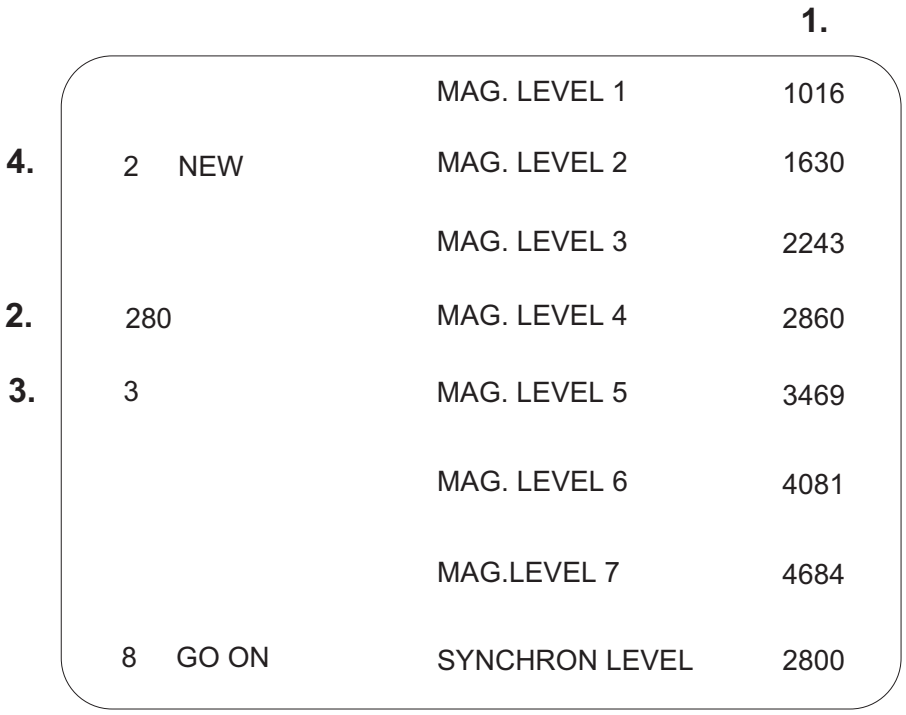


figure 3-1

1. **The number 1016 or 2800 gives the distance in STEPPER MOTOR steps between MAGAZINE REFERENCE POSITION and UPPER LIMIT SENSOR B17.**

- **1 step = 0.15 mm**

2. This figure gives the distance in STEPPER MOTOR STEPS between CASSETTE REFERENCE POSITION and UPPER LIMIT SENSOR B17. It has to be < 300.

3. This figure gives the backlash of the STEPPER MOTOR GEARBOX.

4. IF key #2 is pressed the STEPPER MOTOR transports the FILM POCKET all the way up and down and then to HOME POSITION. During this SCAN RUN all REFERENCE POSITIONS are scanned and the MEMORY is updated.

Note

To get Default VALUES of any PARAMETER just key in F or FF (depending if 1 or 2 digits are needed) for the desired PARAMETER. The Default VALUE will be returned.

Screen 2

1 TILT POSITION	12
2 ADDITIONAL STEPS	8
3 CONTINUOUS LOOP	0
4 INCH FLAG	0
5 LOWER POCKET	00
6 PROCESSOR TIME	28
7 FILM PRESENCE DETECTOR	1
8 GO ON	

figure 3-2

1 TILT POSITION

Purpose:

To separate FILMS in the MAGAZINE.

Distance in steps the FILM POCKET SUCKER BAR has to move up from the top of the FILM STACK after an unexposed FILM has been picked up. After TILT POSITION is reached, the FILM POCKET SUCKER BAR is tilted back.

Range: 0-20 Default: 12

2 ADDITIONAL STEPS

Purpose:

To achieve good contact between MAG.SUCKER BARS and the top FILM in the MAGAZINE.

Number of additional steps (0.15mm/step) after the FILM PIN reached the top FILM in the MAGAZINE. This ensures that the SUCKERS are in close contact with the top FILM. If too many ADDITIONAL STEPS are used, PRESSURE MARKS on the FILM will show up.

Range: 0-E Default: 8

3 CONTINUOUS LOOP

Purpose:

Testing of the MULTILOADER.

If set to 1 a CASSETTE is always transported in and out and reloaded. This is just used for testing.

Range: 0-1 Default: 0

4 INCH FLAG

Purpose: To select how 24x30 and 30x35 are displayed.

0 = Actual Magazine size displayed in inch and cm

1 = Actual Magazine size displayed in inch and cm. However 30 x 35 results in 11 x 14 inch and 24 x 30 cm results in 10 x 12 inch.

Range: 0-1 Default: 0

5 LOWER POCKET

Purpose:

To place the unexposed FILM correctly into the CASSETTE.

Additional down-steps (0.15mm/step) for FILM POCKET SUCKER BAR into CASSETTE. It prevents the unexposed FILM from floating out of the CASSETTE. It should be set together with PARAMETER “POCKET DELAY”.

Range: 0-25 Default: 0

6 PROCESSOR TIME

Purpose:

To adapt the MULTILOADER to PROCESSORS with different speed.

This time is used to avoid false FILM JAM DETECTION at the TUNNEL SENSOR REAR (TSR). The setting depends on the type of the PROCESSOR.

28 = ME-3 / M6 / M8 / 460RA / 480RA / 5000RA

5A = INDUSTRIAL PROCESSOR M6I

Range: 0-B4 Default 28

An INDUSTRIAL PROCESSOR can only be used, if a modified PCB A9 is installed.

7 FILM PRESENCE DETECTOR

Purpose: To enable the MULTILOADER to use X-OMAT CASSETTES without REFLECTIVE STICKERS. **IF THE FILM PRESENCE DETECTOR IS SWITCHED OFF, THE MULTILOADER IS NO LONGER ABLE TO RECOGNIZE MIN-R2 CASSETTES. THEY ARE THEN TREATED AS NORMAL X-OMAT CASSETTES.**

0 = OFF

1 = ON

Range: 0-1 Default: 1

SCREEN 3

1 VACUUM OFF TIME	14
2 STEP BY STEP MODE	0
3 DOUBLE SHEET DET	1
4 TUNNEL FLAG	1
5 PROCESSOR FLAG	1
6 POCKET DELAY	00
7 ENABLE OPERATION	1
8 BACK	

figure 3-3

1 VACUUM OFF TIME

Purpose:

To turn off the VACUUM CASSETTE SUCKER BAR at the correct time.

The CASSETTE SUCKER BAR picks up the exposed FILM from the CASSETTE. As soon as SENSOR FOC (B6) detects the LEADING EDGE of the FILM, the VACUUM OFF TIME is started. At the end of the VACUUM OFF TIME the vacuum is released and the Film is picked up by the TRANSPORT ROLLERS.

Range: 0-20 Default: 14

2 STEP BY STEP MODE

Purpose:

To test the MULTILOADER

O = OFF

1 = ON

To start this mode set Flag to 1. Then leave the SERVICE MODE. In the MAIN MENU an asterisk (*) will appear in the upper left corner. If a CASSETTE is inserted the cycle will be broken into the following steps.

- 1.The CASSETTE is transported to the ENDSWITCH (CES) and the CENTRING BARS will be closed. Selected MAGAZINE opened.
- 2. Press Key 3 FILM POCKET moves to the MAGAZINE level
- 3. Press Key 3 CASSETTE opened
- 4. Press Key 3 FILM removed from CASSETTE
- 5. Press Key 3 SUCKER BAR moves into MAGAZINE
- 6. Press Key 3 SUCKER BAR moves down to FILM, lifts up FILM and is tilted
- 7. Press Key 3 FILM POCKET moves up slightly, SUCKER BAR and FILM still in MAGAZINE
- 8. Press Key 3 SUCKER BAR goes back to TRANSPORT POSITION
- 9. Press Key 3 FILM POCKET moves up to CASSETTE LOADING POSITION
- 10. Press Key 3 SUCKER BAR with FILM moves into CASSETTE
- 11. Press Key 3 VACUUM OFF, FILM drops into CASSETTE, SUCKER BAR moves up slightly
- 12. Press Key 3 SUCKER BAR moves to TRANSPORT POSITION
- 13. Press Key 3 FILMPOCKET moves to HOME POSITION
- 14. Press Key 3 CASSETTE is closed
- 15. Press Key 3 CENTRING BARS moved out, CASSETTE is ejected

To cancel this mode, set the Flag to 0.

Range: 0-1 Default: 0

3 DOUBLE SHEET DET

Purpose:

To detect if 1 or if more than 1 unexposed FILMS are picked up from the MAGAZINE.

0 = OFF

1 = ON

Range: 0-1 Default: 1

4 TUNNEL FLAG

Purpose:

To operate the MULTILOADER without the TUNNEL. It must be set to 1 in normal operation.

0 = TUNNEL SENSORS are not used

1 = On (normal operation)

2 = SDE-BY-SIDE

Range: 0-2 Default: 1

5 PROCESSOR FLAG

Purpose:

To make the ML 700 dependent on a “READY SIGNAL” from the PROCESSOR.

0 = No “READY SIGNAL” necessary from PROCESSOR to operate the ML 700

1 = Operation of ML 700 depends on “READY SIGNAL” from PROCESSOR. If not “READY”, the MULTILOADER cannot be started and DISPLAY will show:

PROCESSOR NOT READY

2 = If DISPLAY shows:

PROCESSOR NOT READY

it is possible to start the MULTILOADER if a CASSETTE is inserted.

Range: 0-1 Default: 1

6 POCKET DELAY

Purpose:

To place the unexposed FILM correctly in the CASSETTE.

Withdrawing the FILM POCKET SUCKER BAR from the CASSETTE after the FILM is released may be delayed. This becomes necessary if a FILM floats out of the CASSETTE. The parameter may be set in steps of 50 ms.Use it in conjunction with PARAMETER LOWER FILM POCKET. Every other value than 0 will increase the CYCLE TIME. It should be set together with PARAMETER LOWER POCKET.

Range: 0-FE Default: 0

7 ENABLE OPERATION

Purpose:

To disable the MULTILOADER

0 = no operation+Errorlamp on

1 = operation

In case of an Error it will be set automatically to 0. Set it to 1 before leaving the SERVICE MODE. If this parameter is not set to 1 Error Code *D2* will be displayed after leaving SERVICE MODE. With this FLAG the ML 700 may be prevented from returning to the USER MODE. This may become necessary to prevent the operation of the ML 700 by the OPERATOR.

Range: 0-1

OPTION 3 CLEAR STATISTICS

There are 5 MEMORIES. To delete a MEMORY key in 2000. To skip a memory key in 0.

- **MEMORY 1** contains: Film Usage summary per month
- **MEMORY 2** conatins: Film Usage summary by size and day
- **MEMORY 3** contains: Number of complete and incomplete cycles by size
- **MEMORY 4** contains: Last 60 Performance Indications and Performance Indicator
- **MEMORY 5** contains: Performance Data

CLEAR MEMORY 1

0 = NO

2000 = DELETE (set MEMORY to zero)

OPTION 4 QUICK OPERATION

Allows to run a cycle without leaving the SERVICE MODE. At the end of the cycle the ELAPSE TIMES are displayed. Filmusage and number of these test cycles are not put into STATISTICS.

OPTION 5 PRINT STATUS REPORT

This option prints out the complete STATISTICS. For detailed information see topic “STATUS REPORT”

OPTION 6 TEST SENSORS

This option displays the state of all SENSORS. If a SENSOR changes its state, you will hear a beep. There are 2 blocks on the DISPLAY. The top one shows the actual state of a SENSOR and the bottom one shows if the state of a SENSOR has changed since the SENSOR TEST was started. Fig 29 gives the position of SENSORS/SWITCHES in both blocks.

There are 7 sets of SENSORS B22...B27. One set for each MAGAZINE. To check these SENSORS first a MAGAZINE has to be selected. This is done via option 7. Then go back to option 6.

To Reset the bottom 2 lines just press C(Clear).

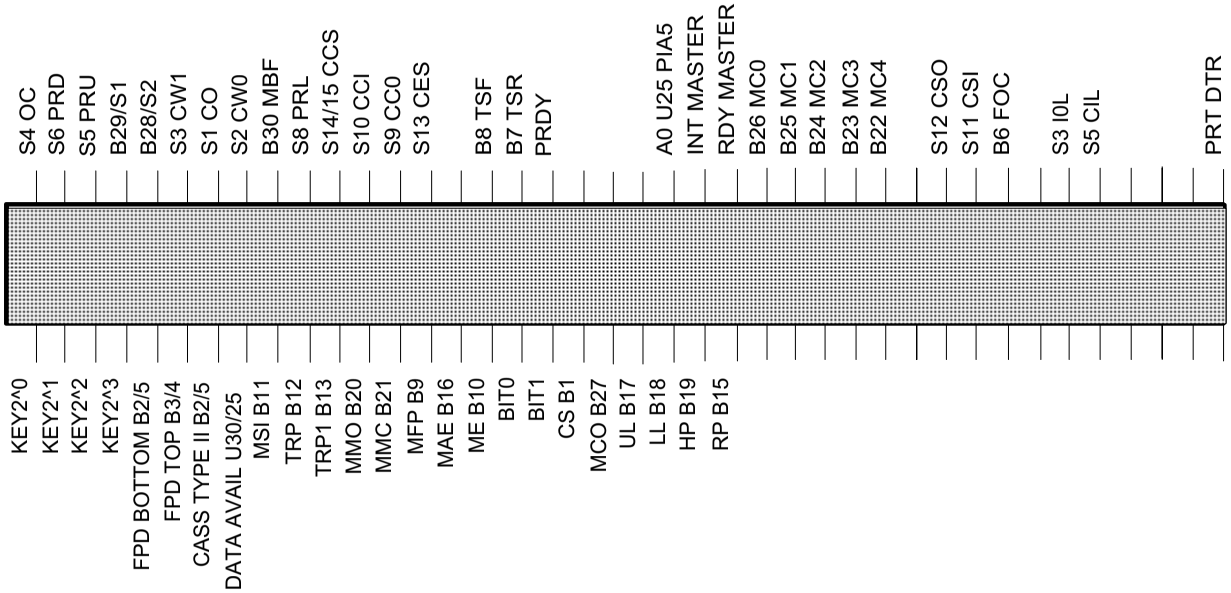
Note

The TEMPLATES shown on the next 2 pages are not drawn to scale.

SENSOR TEST TEMPLATE ML700 PN G9904126

ML700

SENSOR TEST



ML700

SERVICE SWITCH on PCB A0 moved to the right - hand position

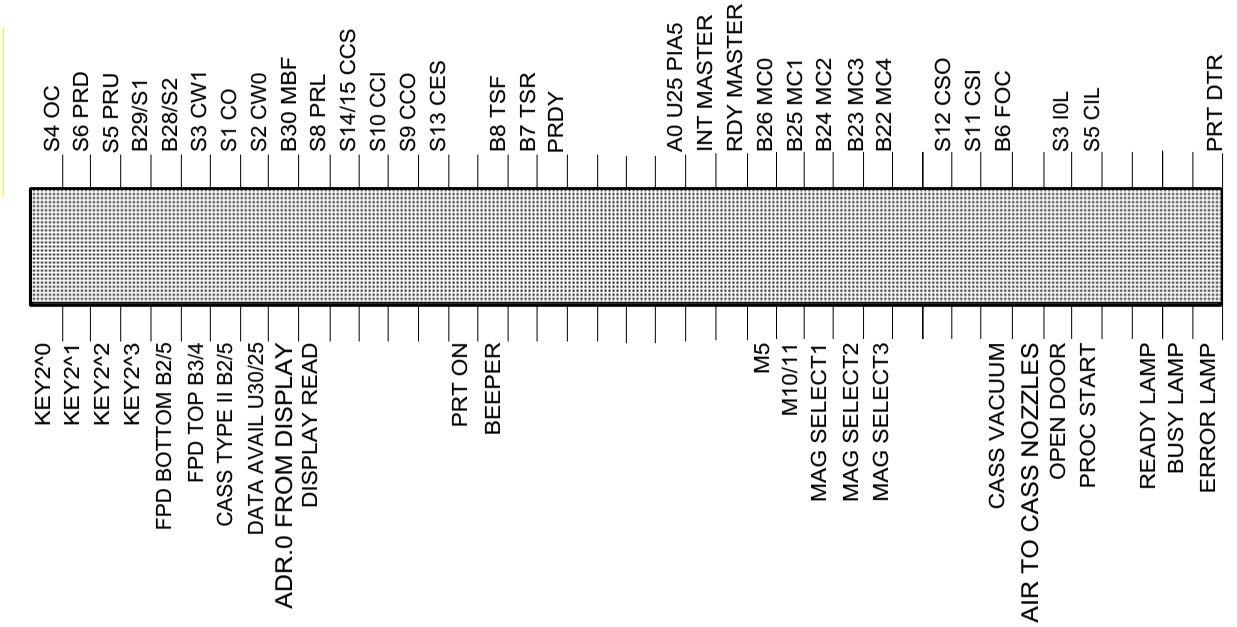
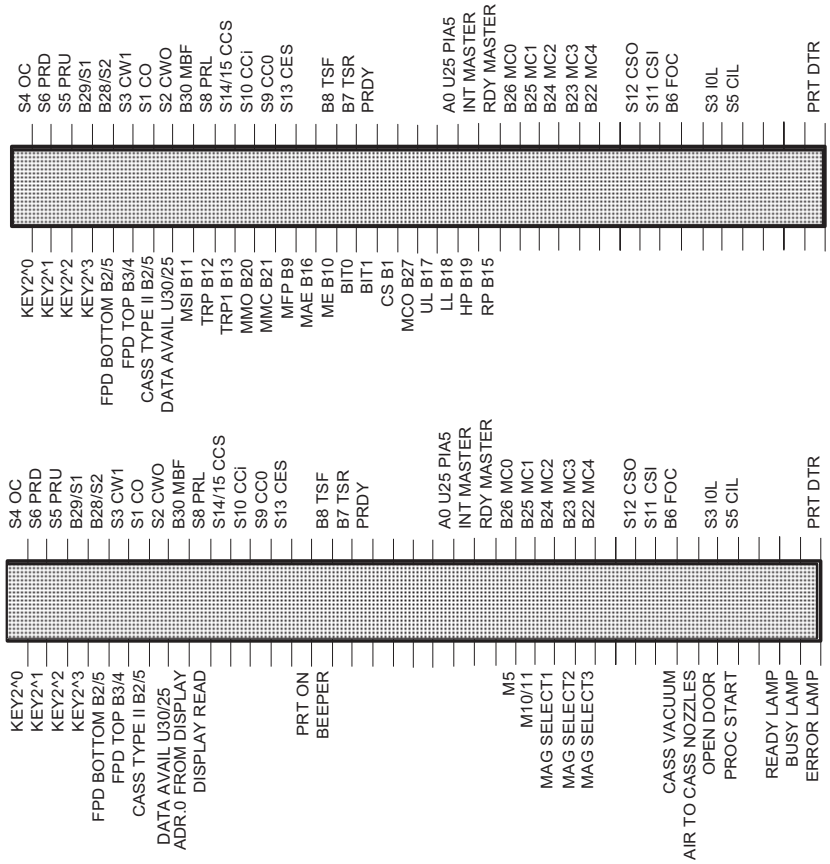


figure 3-4

SENSOR TEST TEMPLATE ML700 PLUS PN G9904127



ML700 PLUS

SENSOR TEST

ML700 PLUS

SERVICE SWITCH on PCB A0 moved to the right - hand position

figure 3-5

LIST OF SENSORS

- B1 ..... CS ..... CASSETTE SIZE
- B2 ..... CT2 ..... CASSETTE TYPE 2 (C1)
- B2 ..... FPDB .... FILM PRESENCE DETECTOR BOTTOM (C3)
- B3 ..... FPDT ..... FILM PRESENCE DETECTOR TOP
- B4 ..... FPDT ..... FILM PRESENCE DETECTOR TOP
- B5 ..... CT2 ..... CASSETTE TYPE 2 (C3)
- B5 ..... FPDB .... FILM PRESENCE DETECTOR BOTTOM (C1)
- B6 ..... FOC ..... FILM OUT OF CASSETTE
- B7 ..... TSR ..... TUNNEL SENSOR REAR
- B8 ..... TSF ..... TUNNEL SENSOR FRONT
- B9 ..... MFP ..... MAGAZINE FILMPIN
- B10 ..... ME ..... MAGAZINE EMPTY
- B11 ..... MSI ..... MAGAZINE SUCKER BAR IN
- B12 ..... TP ..... FILM POCKET TRANSPORT POSITION
- B13 ..... TP1 ..... FILM POCKET TRANSPORT POSITION 1
- B14 ..... DFS ..... DOUBLE FILM SENSOR
- B15 ..... RP ..... REFERENCE POSITION
- B16 ..... MAE ..... MAGAZINE ALMOST EMPTY
- B17 ..... UL ..... UPPER LIMIT
- B18 ..... LL ..... LOWER LIMIT
- B19 ..... HP ..... HOME POSITION
- B20 ..... MMO ..... MAGAZINE MOTOR OPEN
- B21 ..... MMC ..... MAGAZINE MOTOR CLOSED
- B22 ..... MC4 ..... MAGAZINE SIZE 4
- B23 ..... MC3 ..... MAGAZINE SIZE 3
- B24 ..... MC2 ..... MAGAZINE SIZE 2
- B25 ..... MC1 ..... MAGAZINE SIZE 1
- B26 ..... MC0 ..... MAGAZINE SIZE 0
- B27 ..... MCO ..... MAGAZINE COVER OPEN
- B28 ..... IS2 ..... INDUCTIVE SENSOR 2
- B29 ..... IS1 ..... INDUCTIVE SENSOR 1
- B30 ..... MBF ..... MAGAZINE BLOCKED BY FILM
- B31 ..... HUMIDITY SENSOR

LIST OF SWITCHES

- S1 ..... CO ..... CASSETTE OPEN
- S2 ..... CW0 ..... CASSETTE WIDTH 0
- S3 ..... CW1 ..... CASSETTE WIDTH 1
- S4 ..... OC ..... OPEN CASSETTE
- S5 ..... PRU ..... PRESSURE ROLLER UP
- S6 ..... PRD ..... PRESSURE ROLLER DOWN
- S7 ..... not used
- S8 ..... PRL ..... PRESSURE ROLLER LIFTED

- **S9 ..... CCO .....CASSETTE CENTRING OUT**
- **S10 ..... CCI .....CASSETTE CENTRING IN**
- **S11 ..... CSI .....CASSETTE SUCKER BAR IN**
- **S12 ..... CSO .....CASSETTE SUCKER BAR OUT**
- **S13 ..... CES .....CASSETTE ENDSWITCH**
- **S14/15CCS .....CASSETTE CENTRING STOP**
- **S16 to S19 .....not used**
- **S20 ..... TIL .....TUNNEL INTERLOCK LOW**
- **S21 ..... CIL .....COVER INTERLOCK LOW**
- **S22 ..... FIL .....FRONT DOOR INTERLOCK LOW**
- **S23 ..... IOL .....INTERLOCK OVERRIDE LOW**
- **S24 to S26 .....not used**
- **S27 ..... CSW .....COUNTER SWITCH**
- **S28 ..... COM .....COMPRESSOR**
- **S29 ..... VPM .....VACUUM PUMP MAGAZINE**
- **S30 ..... VPC .....VACUUM PUMP CASSETTE**
- **S31 .....C1 / C2 SWITCH**

OPTION 7 ENTER TEST MODE

SCREEN 1

MOTORS

- 1 CASSETTE IN
- 2 ALIGN CASSETTE
- 3 OPEN-CLOSE CASSETTE
- 4 CASSETTE SUCKER BAR
- 5 FILM-PROCESSOR
- 6 OPEN-CLOSE MAGAZINE
- 7 MAGAZINE SUCKER BAR
- 8 NEXT PAGE
-

SCREEN 2

MOTORS

- 1 FILMPOCKET
- 2 VACUUM PUMPS

MAGNETIC VALVES

- 3 CASSETTE
- 4 MAGAZINE

SOLENOIDS

- 5 FRONTDOOR LATCH
- 6 TUNNEL FLAP

8 RETURN

OPTION 7.1

This OPTION allows to turn on and off the CASSETTE TRANSPORT MOTOR.

FEED CASSETTE		1 FEED IN
	!!!	3 FEED IN UNSWITCHED
	!!!	4 FEED OUT UNSWITCHED
		8 RETURN

If you choose 1, the motor is on as long as the corresponding key is pressed and the ENDSWITCH S13 (CES) is not reached.

Caution

- The ENDSWITCHES are out of function, if you choose 3 or 4
- The MOTOR must not run longer than 30 seconds. Otherwise the VDR's 6 and 7 on PCB A4 become overloaded.

OPTION 7.2

This OPTION allows to open and close the CASSETTE CENTRING BARS.

ALIGN CASSETTE	1 ALIGN
	2 RELEASE
	8 RETURN

The MOTOR is on, as long as the corresponding key is pressed and the ENDSWITCHES are not actuated.

OPTION 7.3

This OPTION allows to open and close a CASSETTE.

OPEN-CLOSE CASS		1 OPEN
		2 CLOSE
	!!!	3 OPEN UNSWITCHED
	!!!	4 CLOSE UNSWITCHED
		5 LOWER SWITCH SHAFT
		6 RAISE SWITCH SHAFT
		8 RETURN

The MOTOR is on as long as the corresponding key is pressed and the ENDSWITCH is not reached.

Caution

The ENDSWITCHES are out of function, if you choose 3 or 4.

OPTION 7.4

This option allows to move the CASSETTE SUCKER BAR into the CASSETTE.

CASS. SUCKER BAR		1 TAKE
		2 BACK
	!!!	3 TAKE UNSWITCHED
	!!!	4 BACK UNSWITCHED
	!!!	5 BACK 100 MS UNSW
		8 RETURN

The MOTOR is on as long as the corresponding key is pressed and the ENDSWITCH is not reached.

Caution

The ENDSWITCHES are out of function if you choose 3 or 4.

OPTION 7.5

This option turns the FILM CONVEYOR MOTOR M5 on and off.

FILM PROCESSOR	1 ON
	2 OFF
	8 RETURN

OPTION 7.6

This OPTION allows to open and close a MAGAZINE and selects the SENSORS B22-B27, so that they may be displayed in the SENSOR TEST OPTION 6.

SCREEN 1

SELECT MAGAZINE	1 MAGAZINE 1
	2 MAGAZINE 2
	3 MAGAZINE 3
	4 MAGAZINE 4
	5 MAGAZINE 5
	6 MAGAZINE 6
	7 MAGAZINE 7
	8 RETURN

SCREEN 2

OPEN-CLOSE MAGAZINE	1 OPEN
	2 CLOSE
	6 DEENERGIZE SOLENOID
	8 RETURN

Only the MAGAZINE selected on SCREEN 1 can be opened. If after start of OPTION 7.6 SCREEN 2 is displayed press 6 then 2 for several seconds then press 8. After this start the OPTION again.

OPTION 7.7

This option allows to move the FILM POCKET SUCKER BAR into a MAGAZINE.

MAG. SUCKER BAR	1 TAKE
	2 BACK
	8 RETURN

The MOTOR is on as long as the corresponding key is pressed and the ENDSWITCH is not reached.

OPTION 7.8.1

FILMPOCKET	1 UP
	2 DOWN
	3 TO HOMEPOSITION
	4 TO LEVEL 2
	5 TO LEVEL 4
	6 TO LEVEL 7
	7 TO LEVEL CASSETTE
	8 RETURN

Note

- Selections 1 and 2 do not read the state of the FILM POCKET SENSORS. Start these options only if the MAGAZINE SUCKER BAR is all the way out of the MAGAZINE.
- Selections 3 to 7 are only working if the MAGAZINE SUCKER BAR is in TRANSPORT POSITION 1.

OPTION 7.8.2

This OPTION allows to turn on and off the VACUUM PUMPS.

VACUUM PUMPS	1 ON
	2 OFF
	8 RETURN

OPTION 7.8.3

This OPTION allows to turn on and off the CASSETTE SOLENOID VALVES.

CASSETTE SUCKING	1 ON
	2 OFF
CASSETTE BLOWING	3 ON
	4 OFF
	8 RETURN

OPTION 7.8.4

This OPTION allows to turn on and off the MAGAZINE SOLENOID VALVES.

MAGAZINE SUCKING	1 ON
	2 OFF
MAGAZINE TILTING	3 ON
	4 OFF
MAGAZINE BLOWING	5 ON
	6 OFF
	8 RETURN

OPTION 7.8.5

This OPTION allows to actuate the FRONT DOOR LATCH.

FRONTDOOR LATCH	1 ON
	2 OFF
	8 RETURN

OPTION 7.8.6

THIS OPTION IS NO LONGER USED

TUNNEL FLAP	1 ON
	2 OFF
	8 RETURN

CHAPTER 4

STATUS REPORT

The Status Report contains:

- 1. General Information
- 2. Parameter Setting
- 3. Memory 3 Numbers of complete and incomplete cycles by size
- 4. Memory 4 Performance Indicator and Program Status
- 5. Memory 5 Performance Data

GENERAL INFORMATION

The STATUS REPORT HEADER contains general information. CUSTOMER NAME , UNIT ID and DATE OF INSTALL should be loaded during installation. The software version for MASTER (SOFT VERS) and SLAVE (SOFT VERS SMC) are data stored in the EPROM. STATUS gives date and time of the STATUS REPORT PRINTOUT. LAST CYCLE gives date and time when the MULTILOADER was actuated last prior to printout.

Note

All times are given in Winter Time.

ESR STATUS REPORT	
CUSTOMER NAME	
UNIT ID / SER NO	
SOFT VERS	3.1
SOFT VERS SMC	3.1
DATE OF INSTALLx	
STATUS	15.05/DEC.01.1989
LAST CYCLE	15.00/DEC.02.1989

PARA SETTINGS

The first 2 lines show the MAGAZINE- and CASSETTE REFERENCE POSITIONS.The figures give the number of steps between the UPPER LIMIT SENSOR UL (B17) and the various REFERENCE POSITIONS. The last figure in line 2 gives the backlash of the STEPPERMOTOR GEARBOX. Lines 3 and 4 give the PARAMETER settings.

```
PARA SETTINGS   2820  1014  1628  2244  2858
                3472  4087  4700  0264  0004
                12  08  00  00  00  28  01
                14  00  01  01  01  00
```

LINE 1

2820 = Step value of Home position (Synchronlevel)

1014 = Step value of Magazine 1

1628 = Step value of Magazine 2

2244 = Step value of Magazine 3

2858 = Step value of Magazine 4

LINE 2

3472 = Step value of Magazine 5

4087 = Step value of Magazine 6

4700 = Step value of Magazine 7

0264 = Distance in STEPPER MOTOR STEPS between CASSETTE REFERENCE POSITION and UPPER LIMIT SENSOR. **It has to be <300**

0004 = Backlash of STEPPER MOTOR GEARBOX. **It has to be <7**

LINE 3

12 = TILT POSITION

08 = ADDITIONAL STEPS

00 = CONTINUOUS LOOP

00 = INCH FLAG

00 = LOWER POCKET

28 = PROCESSOR TIME

01 = FILM PRESENCE DETECTOR

LINE 4

14 = VACUUM OFF TIME

00 = STEP BY STEP MODE

01 = DOUBLE SHEET DET

01 = TUNNEL FLAG

01 = PROCESSOR FLAG

00 = POCKET DELAY

MEMORY 3

MEMORY 3 contains the number of TYPE 1 and TYPE 2 FILMS. The first column gives the CASSETTE TYPE. The second column gives the total amount of cycles (if a CASSETTE SIZE was recognized), since the MEMORY 3 was zeroed. Column 3 and 4 are headed with SINCE LAST REP. If the SERVICE MODE is entered via FDAB it is assumed that a SERVICE CALL occured and the columns 3 and 4 will be zeroed.

MALFUNCTION STATISTICS
TOTAL, COMP, INCOM CYCLES SINCE
LAST REPAIR CALL NOV.09.1989

MEMO LAST ZEROED 3.

		SINCE LAST REP	
TYP 1 X-RAY	**TOTAL**	**COMPL**	**INCOM**
18x24cm	**00000013**	**00000**	**010**
18x43cm	**00000000**	**00000**	**000**
20x40cm	**00000000**	**00000**	**000**
24x24cm	**00000000**	**00000**	**000**
24x30cm	**00000009**	**00000**	**000**
30x35cm	**00000000**	**00000**	**000**
30x40cm	**00000000**	**00000**	**000**
35x35cm	**00000007**	**00000**	**000**
35x43cm	**00000000**	**00000**	**000**
8x10 in	**00000000**	**00000**	**000**
	CRT		
8x10 in	**00000000**	**00000**	**000**
11x14 in	**00000000**	**00000**	**000**
	MAMMO		
18x24 cm	**00000000**	**00000**	**000**
24x30 cm	**00000000**	**00000**	**000**

		SINCE LAST REP	
TYP 2 X-RAY	**TOTAL**	**COMPL**	**INCOM**
18x24 cm	**00000000**	**00000**	**000**
18x43 cm	**00000000**	**00000**	**000**
20x40 cm	**00000000**	**00000**	**000**
24x24 cm	**00000000**	**00000**	**000**
24x30 cm	**00000000**	**00000**	**000**
30x35 cm	**00000000**	**00000**	**000**
30x40 cm	**00000000**	**00000**	**000**
35x35 cm	**00000000**	**00000**	**000**
35x43 cm	**00000000**	**00000**	**000**
8x10 in	**00000000**	**00000**	**000**

CRT			
8x10 in	**00000000**	**00000**	**000**
11x14 in	**00000000**	**00000**	**000**
MAMMO			
18x24 cm	**00000000**	**00000**	**000**
24x30 cm	**00000000**	**00000**	**000**
TOTAL	**00000029**	**000000**	**00001**

MEMORY 4

MEMORY 4 contains:

- The last 60 malfunctions (PERF. IND)since the SERVICE MODE was entered via FDAB.
- PERFORMANCE INDICATOR. This is the statistics of the NO-GOOD ELAPSE TIMES and of the ERROR FLAGS. There are 2 columns one for the total amount since MEMORY 4 was zeroed and one SINCE LAST REPAIR (SERVICE MODE was entered via FDAB and this column was zeroed)).
- SIGNAL CHART. This is the ELAPSE TIME comparison of the last complete cycle against the last incomplete cycle. There is no printout of the ERROR FLAGS.

```
MEMO LAST ZEROED 4 NOV.09 1989

LAST 60 PERF. IND. SINCE LAST REPAIR

FILM POCKET MOTOR TIMEOUT
                    6X1  18x24  16.44/NOV.09
NO FILM TAKEN OUT FROM MAG(A)
                    7X1  18x24  16.45/NOV.09
```

- NO FILM TAKEN OUT FROM MAG(A) = PERFORMANCE
- 7X1 .....7 = Mag. Pos 7; X = X-Omat (M = MAMMO, C = CRT); 1 = TYPE 1
  18x24 .....= MAGAZINE SIZE
  16.45/NOV.09 .....= Time and date

	PERFORMANCE INDICATOR		**SINCE LAST REP**	
Fi1	**PRESS. ROLLER NOT LIFTED 1**	**00000**	**000**	
Fi3	**PRESS. ROLLER NOT LIFTED 2**	**00000**	**000**	*Function Cassette In*
Fi4	**CASSETTE NOT AT ENDSWITCH**	**00000**	**000**	
Fi6	**CASSETTE NOT RECOGNIZED**	**00000**	**000**	
Fi7	**CASSETTE NOT CENTERED**	**00000**	**000**	
OP2	**OPENER NOT AT ENDPOSITION**	**00000**	**000**	*Function Open Cassette*
UN3	**UNLOAD ENDSWITCH EARLY**	**00004**	**001**	*Function Unload Film*

CL1	**CASSETTE NOT CLOSED**	**00000**	**000**	
CL2	**NO ENDSWITCH CLOSING**	**00000**	**000**	*Function Close Cassette*

CO2	**PRESS. ROLLER NOT LIFTED 3**	**00000**	**000**	
CO6	**PRESS. ROLLER NOT LIFTED 4**	**00000**	**000**	*Function Cassette Out*
CO7	**CENTERING NOT OPENED**	**00000**	**000**	

ELAPSE TIMES FROM SLAVE PROCESSOR

MNO	**MAGAZINE NOT OPENED**	**00000**	**000**
MTO	**MAG. COVER MOTOR TIMEOUT**	**00000**	**000**
FTO	**FILMPOCKET MOTOR TIMEOUT**	**00002**	**001**
SCE	**STEPPERMOTOR COUNT ERROR**	**00000**	**000**
STO	**STEPPERMOTOR TIMEOUT**	**00000**	**000**
SES	**STEPPERMOTOR SWITCH**	**00000**	**000**
NT1	**SUCKERBAR NO TRANSP.POS.1**	**00000**	**000**
FNR	**FILM NOT REACHED**	**00000**	**000**
MAE	**MAGAZINE ALMOST EMPTY**	**00000**	**000**
MNE	**MAGAZINE NEXT TIME EMPTY**	**00000**	**000**
AT2	**ATTEMPT 2**	**00000**	**000**
AT3	**ATTEMPT 3**	**00000**	**000**
FLT	**FILM LOST**	**00000**	**000**
FL3	**FILM 3 TIMES LOST**	**00000**	**000**
DFD	**DOUBLE FILM DETECTED**	**00000**	**000**
3DD	**DOUBLE FILM 3 TIMES DET.**	**00000**	**000**
MWE	**MAGAZINE WAS EMPTY**	**00000**	**000**
FDT	**FILM LOST DURING TRANSP.**	**00000**	**000**
FSS	**FILM STICKS AT SUCKER**	**00000**	**000**
NFA	**NO FILM TAKEN FROM MAG(A)**	**00002**	**001**
NFS	**NO FILM TAKEN FROM MAG(S)**	**00000**	**000**
	PERFORMANCE	*total*	*since last repair*

The information printed in italics is not on the printout. It is just for easier reference.

LIST OF ERROR FLAGS

Fi = 1	**00000**	**000**
Fi = 2	**00000**	**000**
Fi = 3	**00001**	**001**
Fi = 4	**00000**	**000**
Fi = 5	**00000**	**000**
Fi = 6	**00000**	**000**
OP = 2	**00000**	**000**
OP = 3	**00000**	**000**
FPD = 1	**00000**	**000**

FPD = 3	**00000**	**000**
UN = 1	**00000**	**000**
UN = 2	**00000**	**000**
UN = 3	**00000**	**000**
UN = 4	**00000**	**000**
UN = 5	**00000**	**000**
UN = 6	**00000**	**000**
UN = 7	**00000**	**000**
UN = 8	**00000**	**000**
UN = 9	**00000**	**000**
UN = 10	**00000**	**000**
UN = 11	**00000**	**000**
CL = 2	**00000**	**000**
CO = 1	**00001**	**001**
CO = 2	**00000**	**000**
CO = 3	**00000**	**000**
CO = 4	**00000**	**000**
TE = 1	**00000**	**000**
RE = 1	**00000**	**000**
PERFORMANCE	*total*	*since last repair*

The information printed in italics is not on the printout. It is just for easier reference.

SIGNAL CHART

PROGRAM STATUS MASTER PROCESSOR

	PROGRAM STATUS	**LAST CYCLE** COMPL	**LAST CYCLE** INCOMPL	
Fi1	**PRESS.ROLLER NOT LIFTED 1**			*Function Cassette In*
Fi2	**CASSETTE GRASPED**	**25.5**	**25.5**	
Fi3	**PRESS.ROLLER NOT LIFTED 2**			
Fi4	**CASSETTE NOT AT ENDSWITCH**			
Fi5	**CLOSE CENTERING BARS**	**01.4**	**0.19**	
Fi6	**CASSETTE NOT RECOGNIZED**			
Fi7	**CASSETTE NOT CENTERED**			
Fi8	**CASSETTE CENTERED**	**02.0**	**02.5**	
Fi9	**INFEED ENDED**	**02.0**	**02.5**	
OP2	**OPENER NOT AT ENDPOSITION**			*Function Open Cassette*
OP3	**CASSETTE OPENED**	**03.4**	**04.0**	
UN1	**START SUCK.MOV.INTO CASS.**	**03.5**	**04.1**	*Function Open Cassette*
UN2	**START UNLOAD FROM CASS.**	**06.9**	**05.1**	
UN3	**UNLOAD ENDSWITCH EARLY**	**05.8**		
UN4	**UNLOAD ENDED**	**08.2**	**06.3**	
UN5	**TRAILING EDGE RECOGNIZED**	**08.6**	**06.7**	
UN6	**FILM IS TRANSP. IN TUNNEL**	**10.1**	**08.3**	
UN7	**MODULE UNLOAD CASS. ENDED**	**10.1**	**08.3**	

CL1	**CASSETTE NOT CLOSED**			*Function Close Cassette*
CL2	**NO ENDSWITCH CLOSING**			
CL3	**CASSETTE CLOSED**	**16.7**	**10.1**	
CO1	**CENTERING BARS OPENED**	**18.1**	**11.6**	*Function Cassette Out*
CO2	**PRESS.ROLLER NOT LIFTED 3**			
CO3	**PRESSURE ROLLER LIFTED**	**17.4**	**10.9**	
CO4	**PRESS.ROLLER LIFT.(MOTOR**	**18.1**	**11.6**	
CO5	**CASS.TRANSPORTED OUT**	**17.8**	**11.3**	
CO6	**PRESS.ROLLER NOT LIFTED 4**			
CO7	**CENTERING NOT OPENED**			
CO8	**FUNCTION CASS. OUT ENDED**	**18.8**	**16.7**	
	ELAPSE TIMES			

The information printed in italics is not on the printout. It is just for easier reference. The columns LAST CYCLE COMPL and LAST CYCLE INCOMPL are zeroed when the SERVICE MODE is entered via FDAB.

PROGRAM STATUS SLAVE PROCESSOR

M1R	**MAGAZINE 1 REACHED**		
M2R	**MAGAZINE 2 REACHED**		
M3R	**MAGAZINE 3 REACHED**		
M4R	**MAGAZINE 4 REACHED**		
M5R	**MAGAZINE 5 REACHED**		
M6R	**MAGAZINE 6 REACHED**	**03.2**	**03.8**
M7R	**MAGAZINE 7 REACHED**		
MNO	**MAGAZINE NOT OPENED**		
MOP	**MAGAZINE OPEN**	**03.2**	**03.8**
MCL	**MAGAZINE CLOSED**	**15.5**	
MTO	**MAG. COVER MOTOR TIMEOUT**		
FTO	**FILMPOCKET MOTOR TIMEOUT**		**08.7**
SCE	**STEPPERMOTOR COUNT ERROR**		
STO	**STEPPERMOTOR TIMEOUT**		
SES	**STEPPERMOTOR SWITCH**		
NT1	**SUCKERBAR NO TRANSP.POS.1**		
SIM	**SUCKERBAR IN MAGAZIN POS.**	**04.1**	**04.5**
FMR	**FILM REACHED**	**04.8**	**05.2**
TPR	**TRANSPORT POS. REACHED**	**09.6**	
CLR	**CASSETTE LEVEL REACHED**	**12.8**	
EXP	**EXCHANGE POSITION REACHED**	**13.9**	
TP1	**TRANSPORTPOSIT. 1 REACHED**	**15.5**	
SMH	**STEPPERMOTOR HOME**	**18.1**	
MRP	**MAG.REF. POSITION REACHED**	**14.4**	
FNR	**FILM NOT REACHED**		
MAE	**MAGAZINE ALMOST EMPTY**		
MNE	**MAGAZINE NEXT TIME EMPTY**		
AT2	**ATTEMPT 2**		

AT3 **ATTEMPT 3**
FLT **FILM LOST**
FL3 **FILM 3 TIMES LOST**
DFD **DOUBLE FILM DETECTED**
3DD **DOUBLE FILM 3 TIMES DET**
MWE **MAGAZINE WAS EMPTY**
FDT **FILM LOST DURING TRANSP**
FSS **FILM STICKS AT SUCKER**
NFA **NO FILM TAKEN FROM MAG(A)** **08.7**
NFS **NO FILM TAKEN FROM MAG(S**)
ELAPSE TIMES

The information printed in italics is not on the printout. It is just for easier reference.

MEMORY 5

Memory 5 contains reliability figures.

MEMO LAST ZEROED 5 NOV.09.1989		
ASLSC	**00031**	*Actuations since last SERVICE CALL*
NUMBER OF SC	**00001**	*Number of SERVICE CALLS*
MABSC	**00031**	*Average number of actuations between SERVICE CALLS*
ACTUATIONS TOTAL 00000031		*Number of actuations, no matter if a valid CASSETTE SIZE was detected.*

The SERVICE CALL COUNTER can be incremented only once a day. This means if the SERVICE MODE is entered 5 times a day via FDAB only one SERVICE CALL is counted.

CHAPTER 5

DIAGNOSTIC FLOW CHARTS

NO DISPLAY AFTER POWER UP

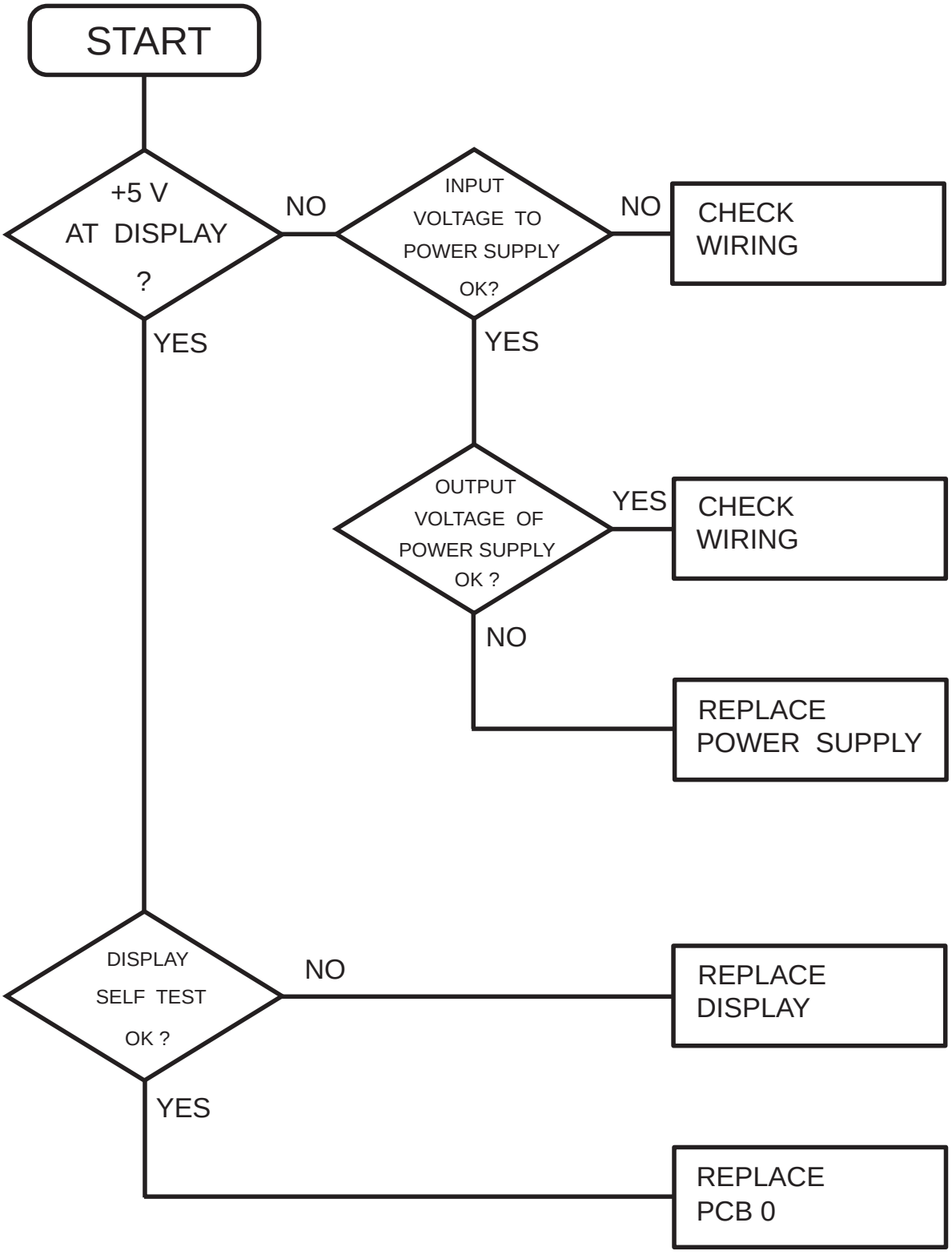


figure 5-1

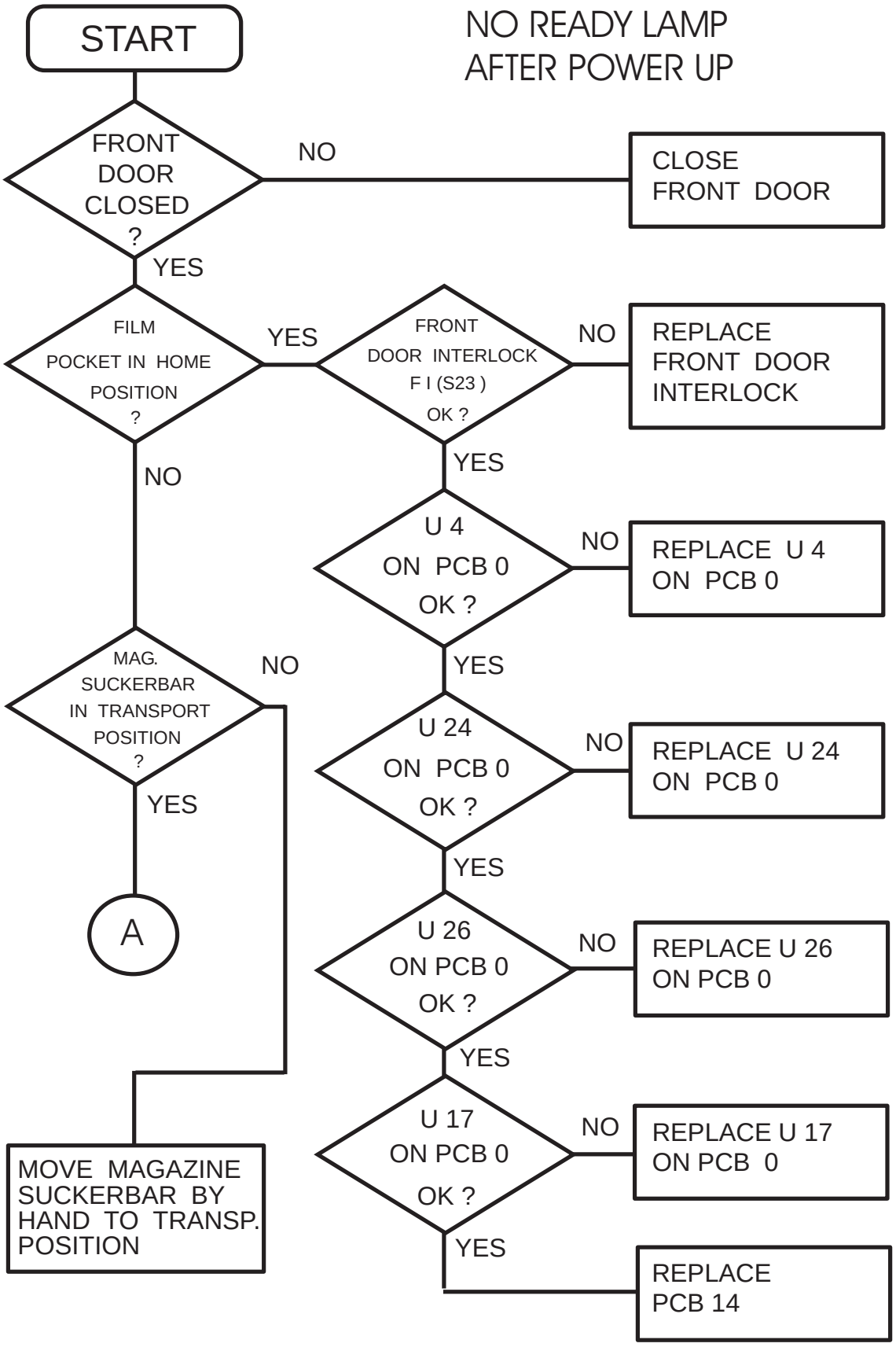

START
NO READY LAMP
AFTER POWER UP
FRONT DOOR CLOSED ?
NO
CLOSE FRONT DOOR
YES
FILM POCKET IN HOME POSITION ?
YES
FRONT DOOR INTERLOCK F I (S23) OK ?
NO
REPLACE FRONT DOOR INTERLOCK
YES
NO
U 4 ON PCB 0 OK ?
NO
REPLACE U 4 ON PCB 0
YES
MAG. SUCKERBAR IN TRANSPORT POSITION ?
NO
U 24 ON PCB 0 OK ?
NO
REPLACE U 24 ON PCB 0
YES
YES
A
U 26 ON PCB 0 OK ?
NO
REPLACE U 26 ON PCB 0
YES
U 17 ON PCB 0 OK ?
NO
REPLACE U 17 ON PCB 0
YES
MOVE MAGAZINE SUCKERBAR BY HAND TO TRANSP. POSITION
REPLACE PCB 14

figure 5-2

NO READY LAMP AFTER POWER UP

CONT.

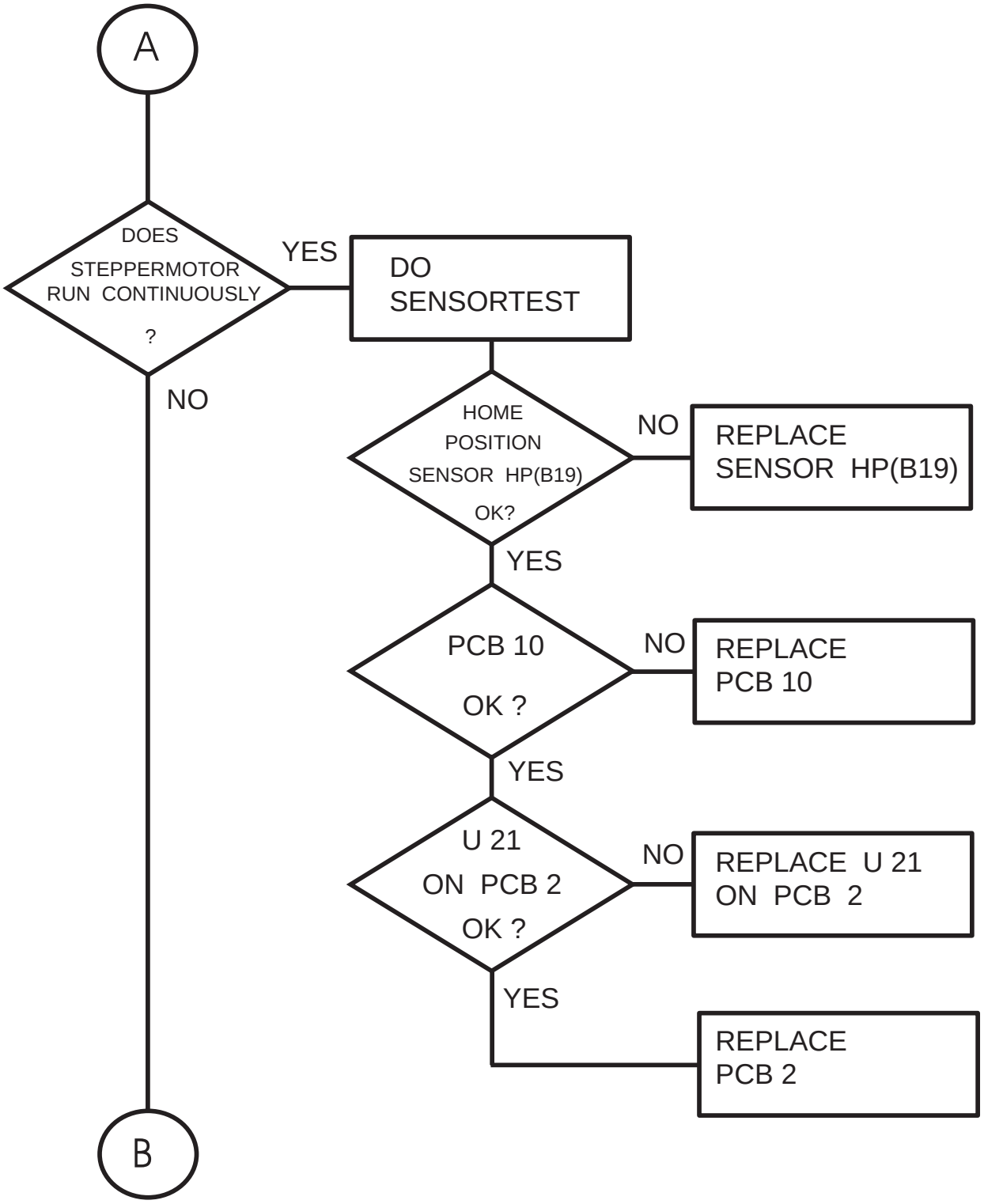


figure 5-3

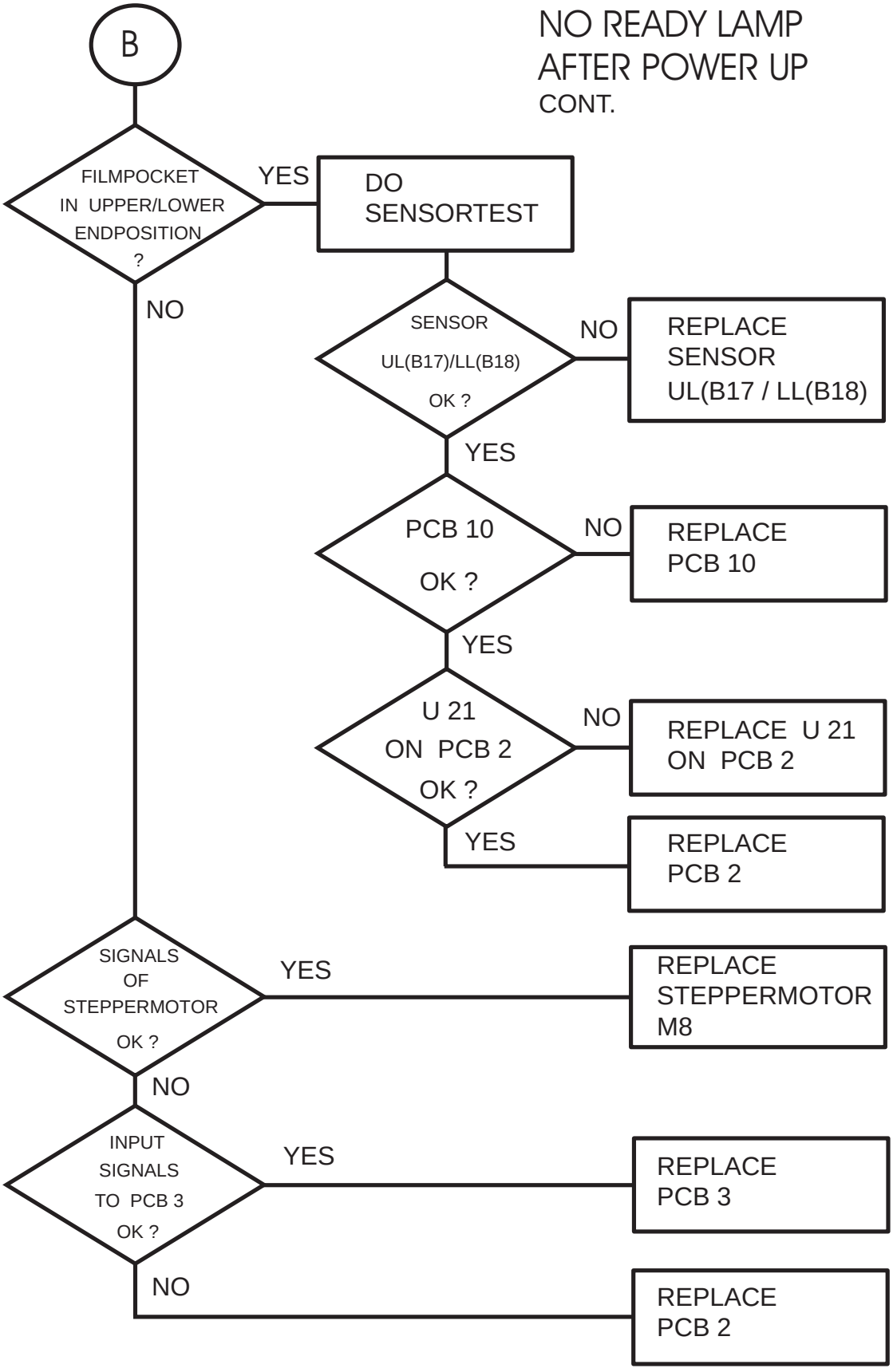

B
NO READY LAMP
AFTER POWER UP
CONT.
FILMPOCKET IN UPPER/LOWER ENDPOSITION ?
YES
DO SENSORTEST
NO
SENSOR UL(B17)/LL(B18) OK ?
NO
REPLACE SENSOR UL(B17 / LL(B18)
YES
PCB 10 OK ?
NO
REPLACE PCB 10
YES
U 21 ON PCB 2 OK ?
NO
REPLACE U 21 ON PCB 2
YES
REPLACE PCB 2
SIGNALS OF STEPPERMOTOR OK ?
YES
REPLACE STEPPERMOTOR M8
NO
INPUT SIGNALS TO PCB 3 OK ?
YES
REPLACE PCB 3
NO
REPLACE PCB 2

figure 5-4

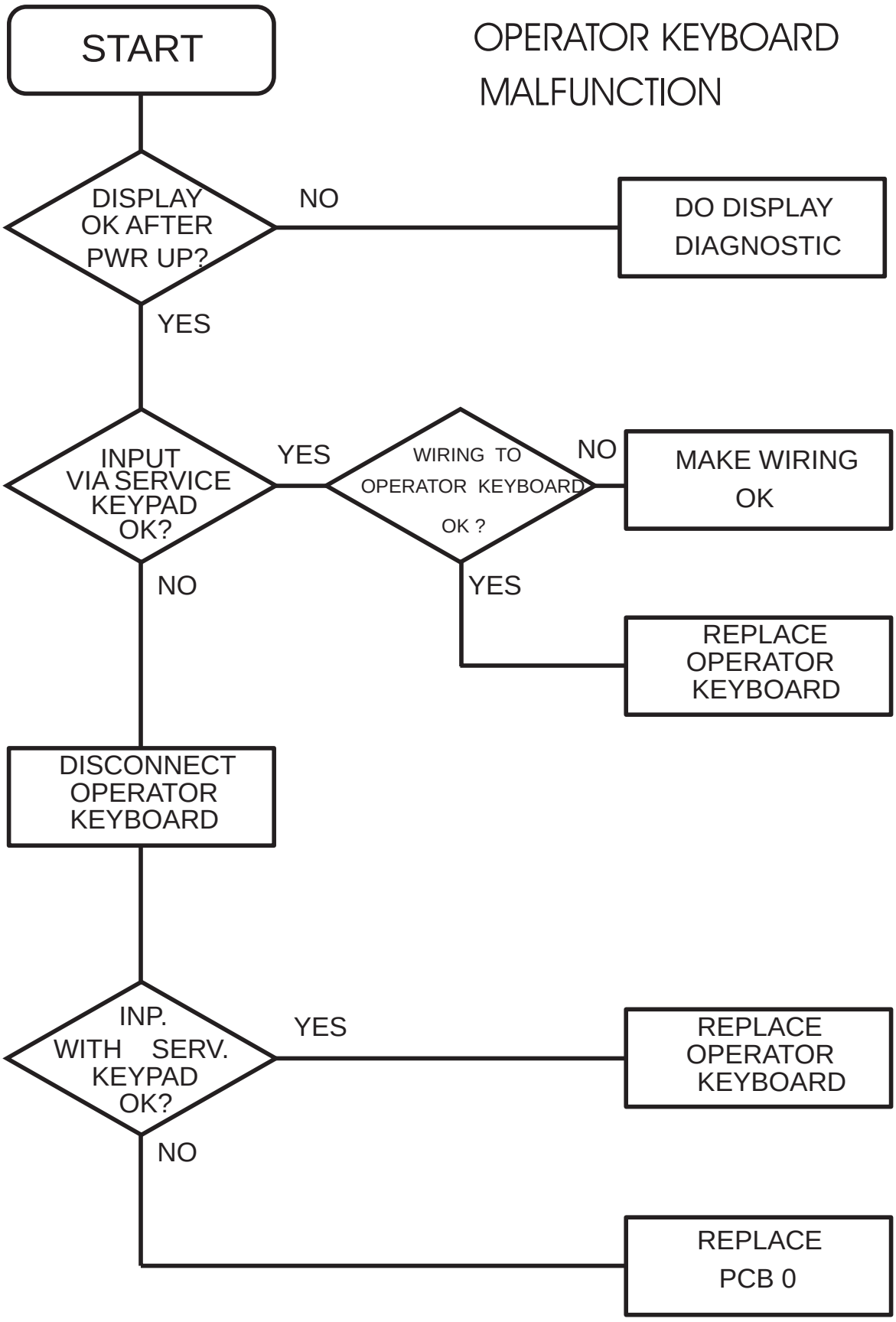

START
OPERATOR KEYBOARD MALFUNCTION
DISPLAY OK AFTER PWR UP?
NO
DO DISPLAY DIAGNOSTIC
YES
INPUT VIA SERVICE KEYPAD OK?
YES
WIRING TO OPERATOR KEYBOARD OK ?
NO
MAKE WIRING OK
NO
YES
REPLACE OPERATOR KEYBOARD
DISCONNECT OPERATOR KEYBOARD
INP. WITH SERV. KEYPAD OK?
YES
REPLACE OPERATOR KEYBOARD
NO
REPLACE PCB 0

figure 5-5

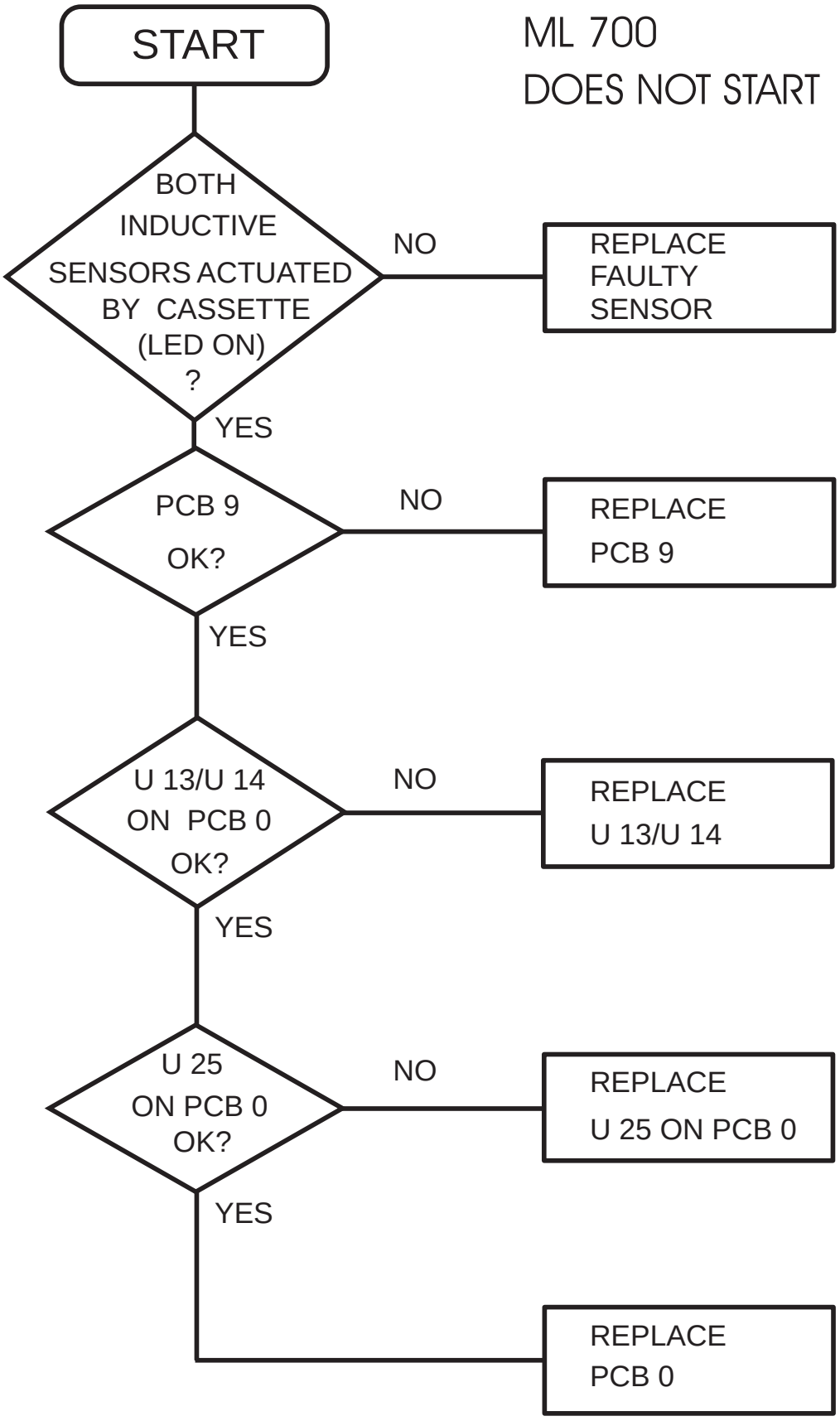

START
ML 700
DOES NOT START
BOTH INDUCTIVE SENSORS ACTUATED BY CASSETTE (LED ON) ?
NO
REPLACE FAULTY SENSOR
YES
PCB 9 OK?
NO
REPLACE PCB 9
YES
U 13/U 14 ON PCB 0 OK?
NO
REPLACE U 13/U 14
YES
U 25 ON PCB 0 OK?
NO
REPLACE U 25 ON PCB 0
YES
REPLACE PCB 0

figure 5-6

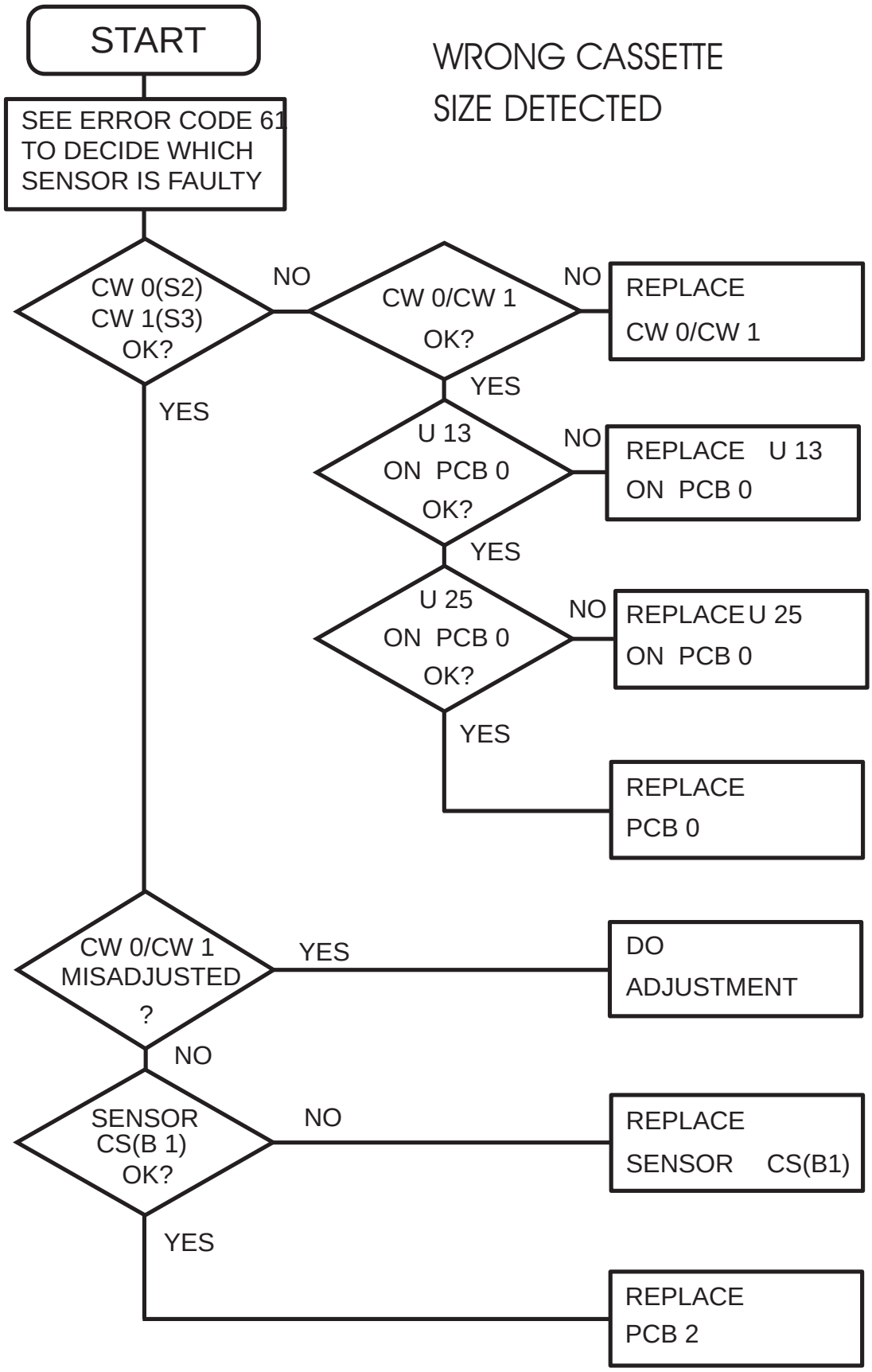

START
WRONG CASSETTE SIZE DETECTED
SEE ERROR CODE 61 TO DECIDE WHICH SENSOR IS FAULTY
CW 0(S2) CW 1(S3) OK?
NO
CW 0/CW 1 OK?
NO
REPLACE CW 0/CW 1
YES
YES
U 13 ON PCB 0 OK?
NO
REPLACE U 13 ON PCB 0
YES
U 25 ON PCB 0 OK?
NO
REPLACE U 25 ON PCB 0
YES
REPLACE PCB 0
CW 0/CW 1 MISADJUSTED ?
YES
DO ADJUSTMENT
NO
SENSOR CS(B 1) OK?
NO
REPLACE SENSOR CS(B1)
YES
REPLACE PCB 2

figure 5-7

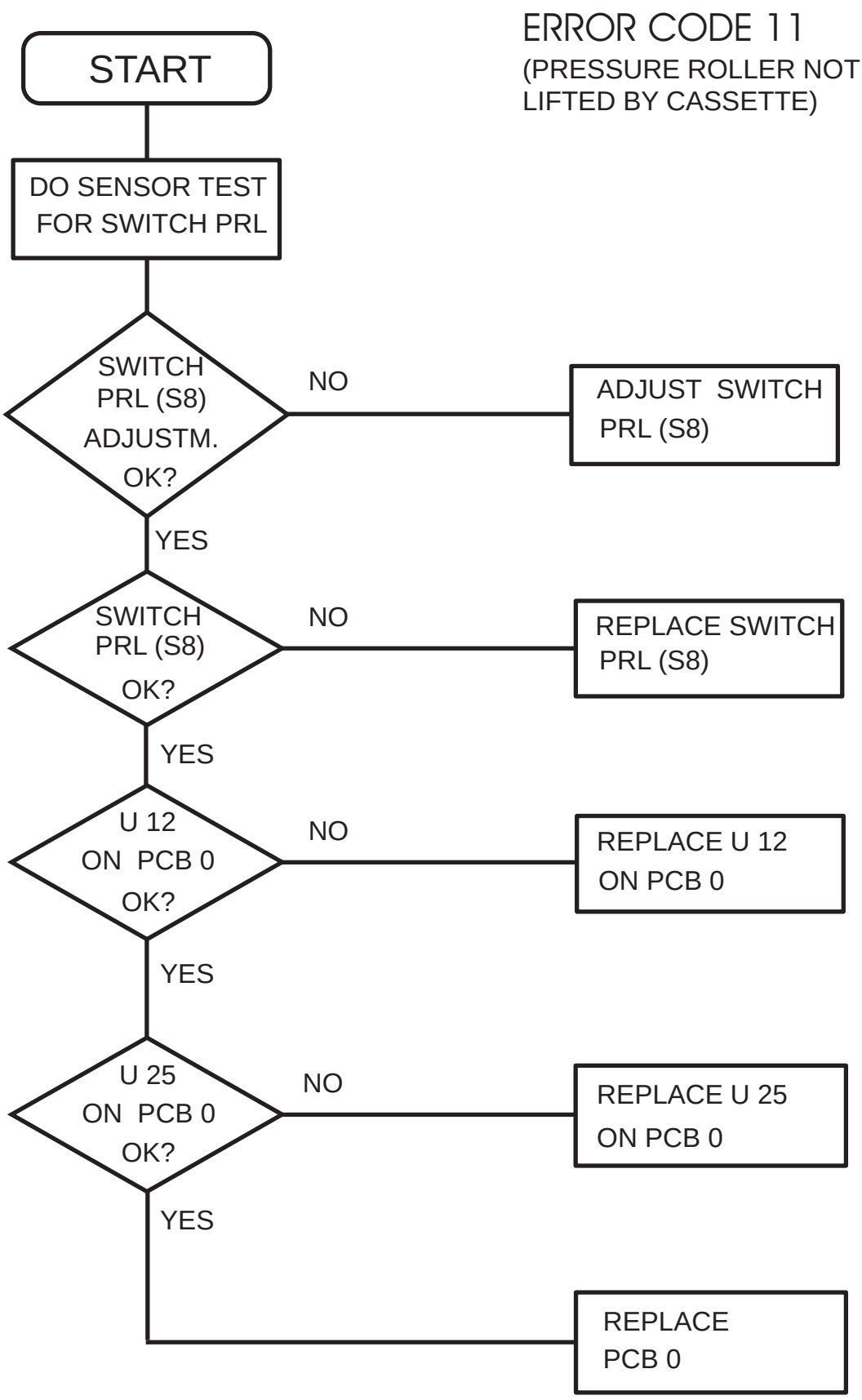

ERROR CODE 11
(PRESSURE ROLLER NOT LIFTED BY CASSETTE)
START
DO SENSOR TEST FOR SWITCH PRL
SWITCH PRL (S8) ADJUSTM. OK?
NO
ADJUST SWITCH PRL (S8)
YES
SWITCH PRL (S8) OK?
NO
REPLACE SWITCH PRL (S8)
YES
U 12 ON PCB 0 OK?
NO
REPLACE U 12 ON PCB 0
YES
U 25 ON PCB 0 OK?
NO
REPLACE U 25 ON PCB 0
YES
REPLACE PCB 0

figure 5-8

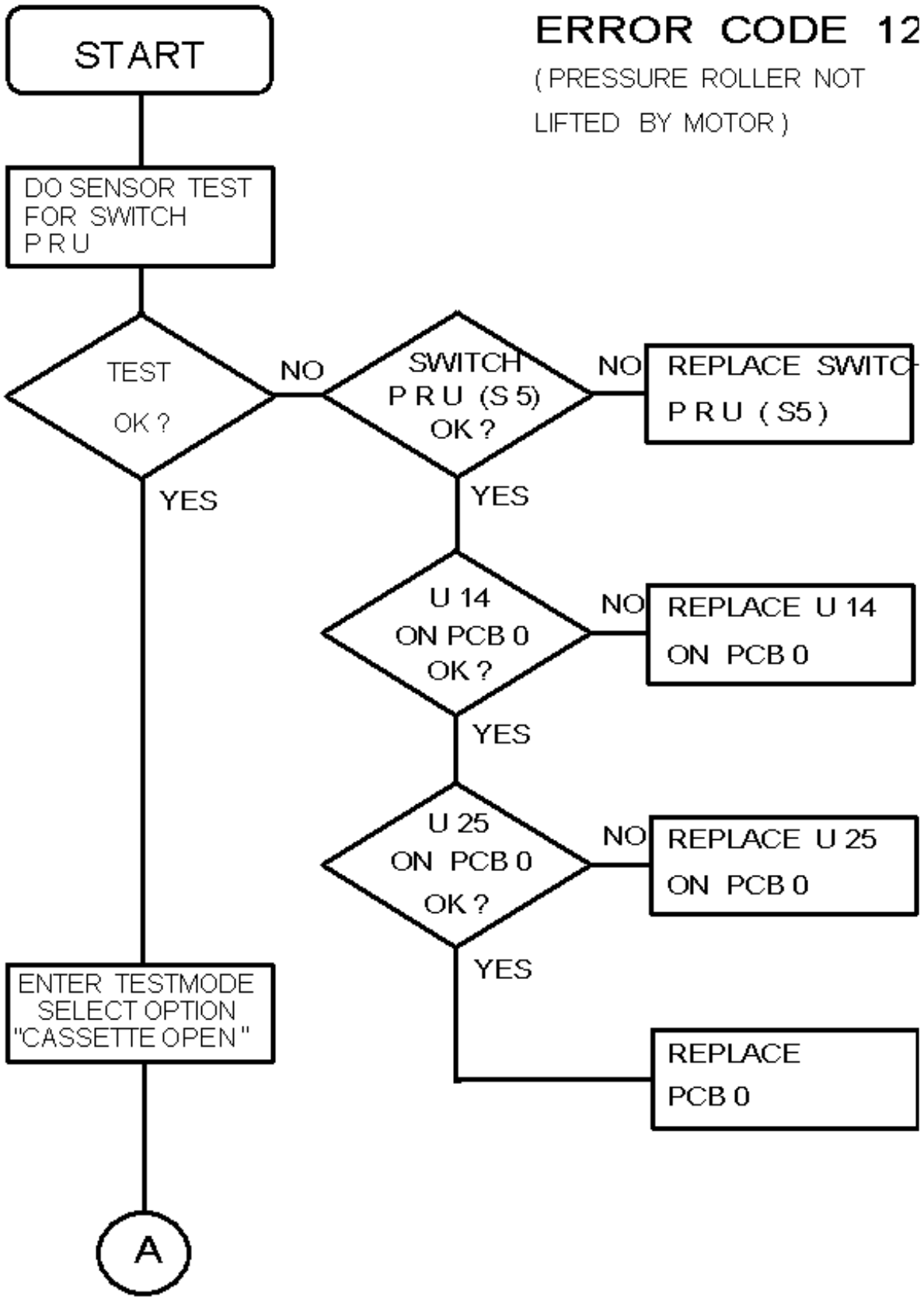

ERROR CODE 12
(PRESSURE ROLLER NOT LIFTED BY MOTOR)
START
DO SENSOR TEST FOR SWITCH P R U
TEST OK ?
NO
SWITCH P R U (S 5) OK ?
NO
REPLACE SWITCH P R U (S5)
YES
YES
U 14 ON PCB 0 OK ?
NO
REPLACE U 14 ON PCB 0
YES
U 25 ON PCB 0 OK ?
NO
REPLACE U 25 ON PCB 0
YES
REPLACE PCB 0
ENTER TESTMODE SELECT OPTION "CASSETTE OPEN"
A

figure 5-9

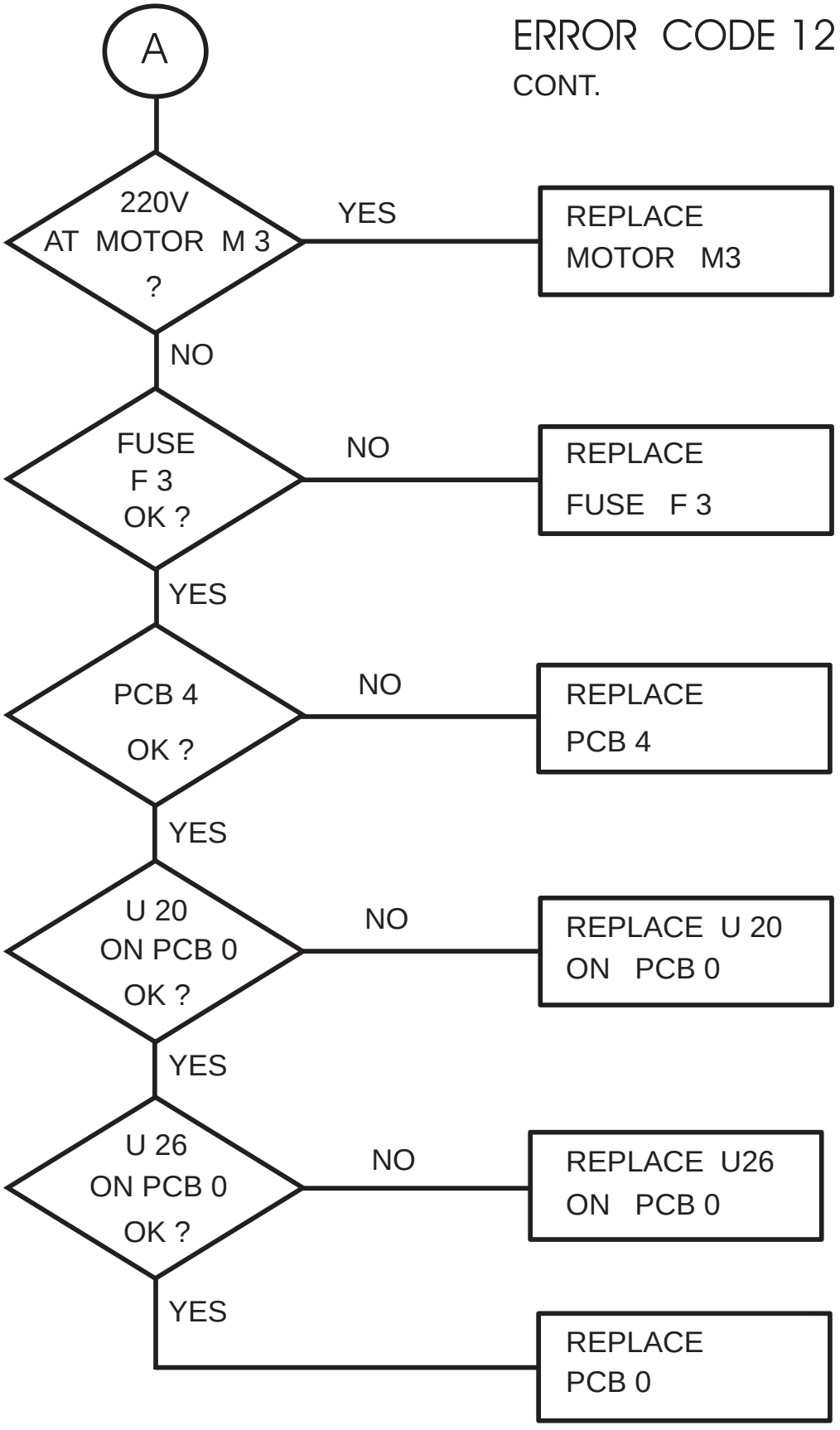

A
ERROR CODE 12
CONT.
220V AT MOTOR M 3 ?
YES
REPLACE MOTOR M3
NO
FUSE F 3 OK ?
NO
REPLACE FUSE F 3
YES
PCB 4 OK ?
NO
REPLACE PCB 4
YES
U 20 ON PCB 0 OK ?
NO
REPLACE U 20 ON PCB 0
YES
U 26 ON PCB 0 OK ?
NO
REPLACE U26 ON PCB 0
YES
REPLACE PCB 0

figure 5-10

ERROR CODE 13

(CASSETTE DID NOT REACH END SWITCH CES)

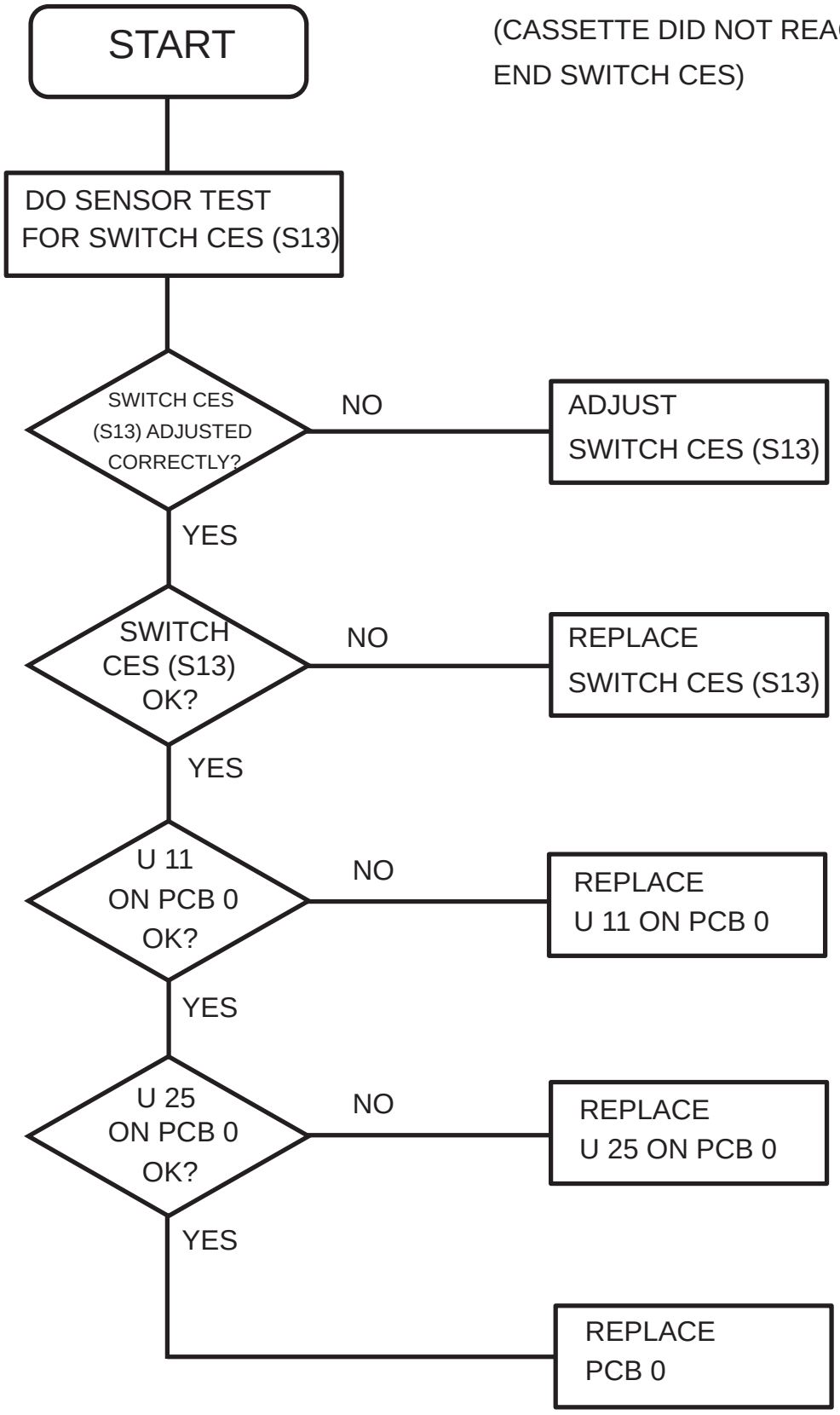


figure 5-11

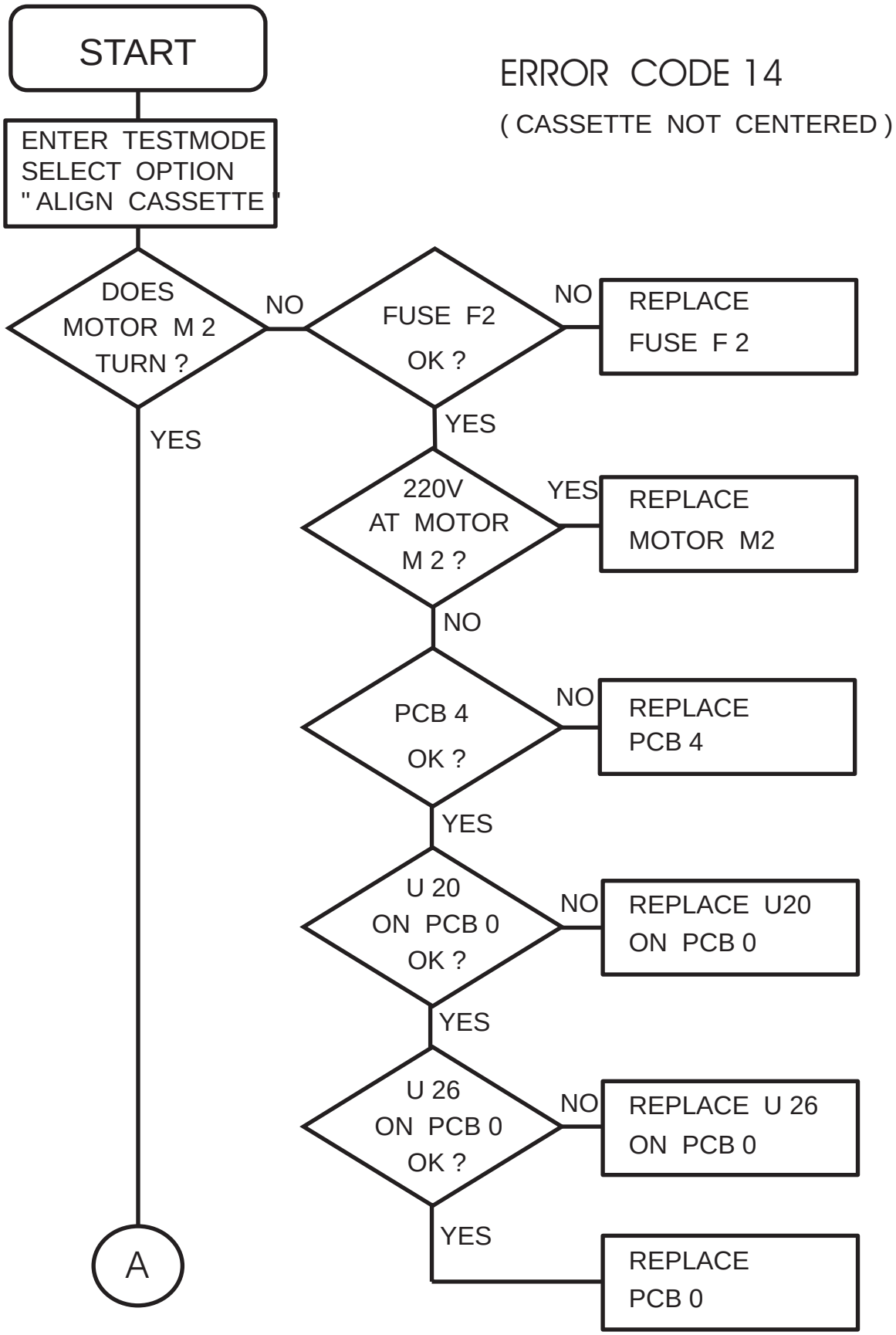

START
ERROR CODE 14
(CASSETTE NOT CENTERED)
ENTER TESTMODE
SELECT OPTION
" ALIGN CASSETTE "
DOES MOTOR M 2 TURN ?
NO
FUSE F2 OK ?
NO
REPLACE FUSE F 2
YES
YES
220V AT MOTOR M 2 ?
YES
REPLACE MOTOR M2
NO
PCB 4 OK ?
NO
REPLACE PCB 4
YES
U 20 ON PCB 0 OK ?
NO
REPLACE U20 ON PCB 0
YES
U 26 ON PCB 0 OK ?
NO
REPLACE U 26 ON PCB 0
YES
REPLACE PCB 0
A

figure 5-12

ERROR CODE 14
CONT.

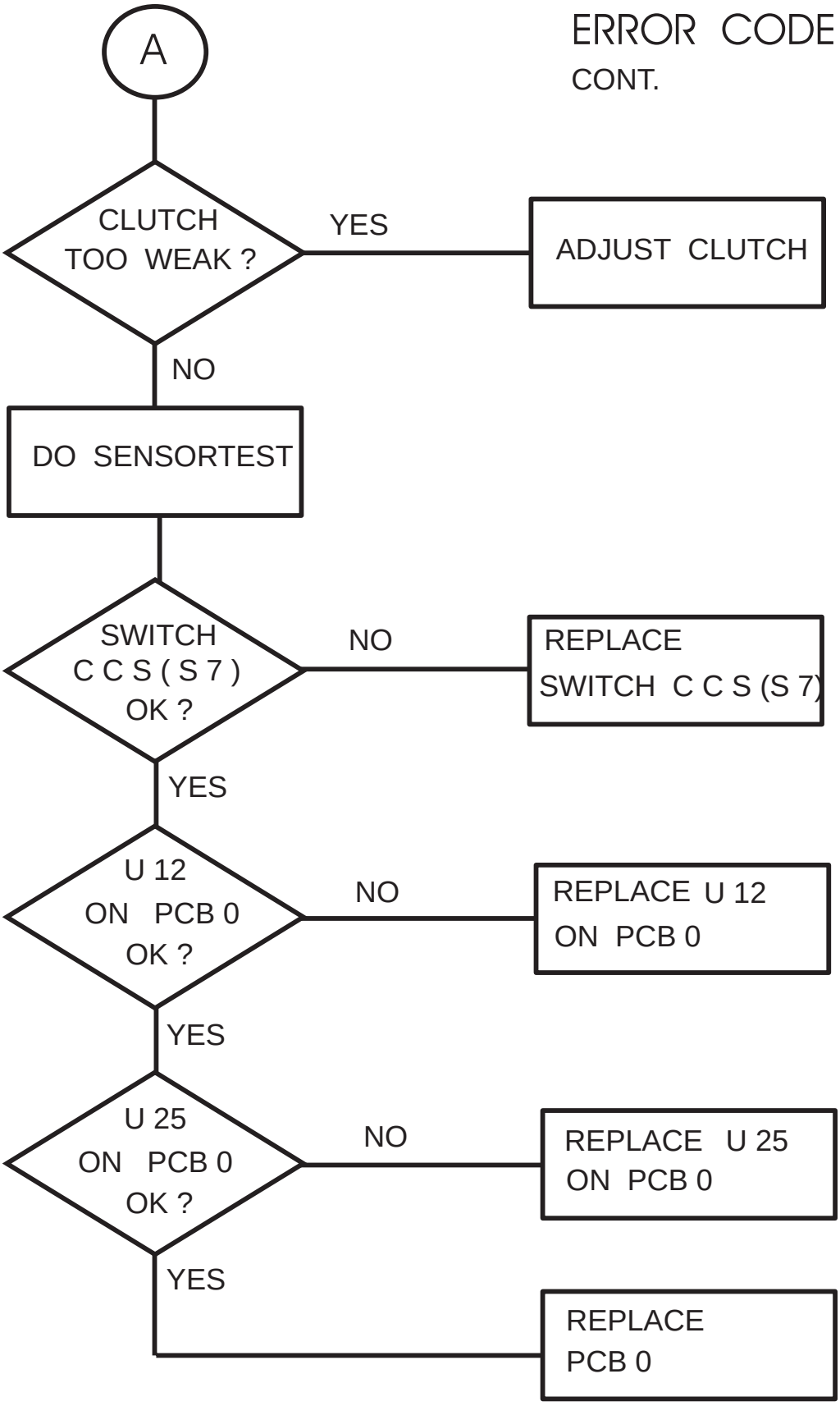


figure 5-13

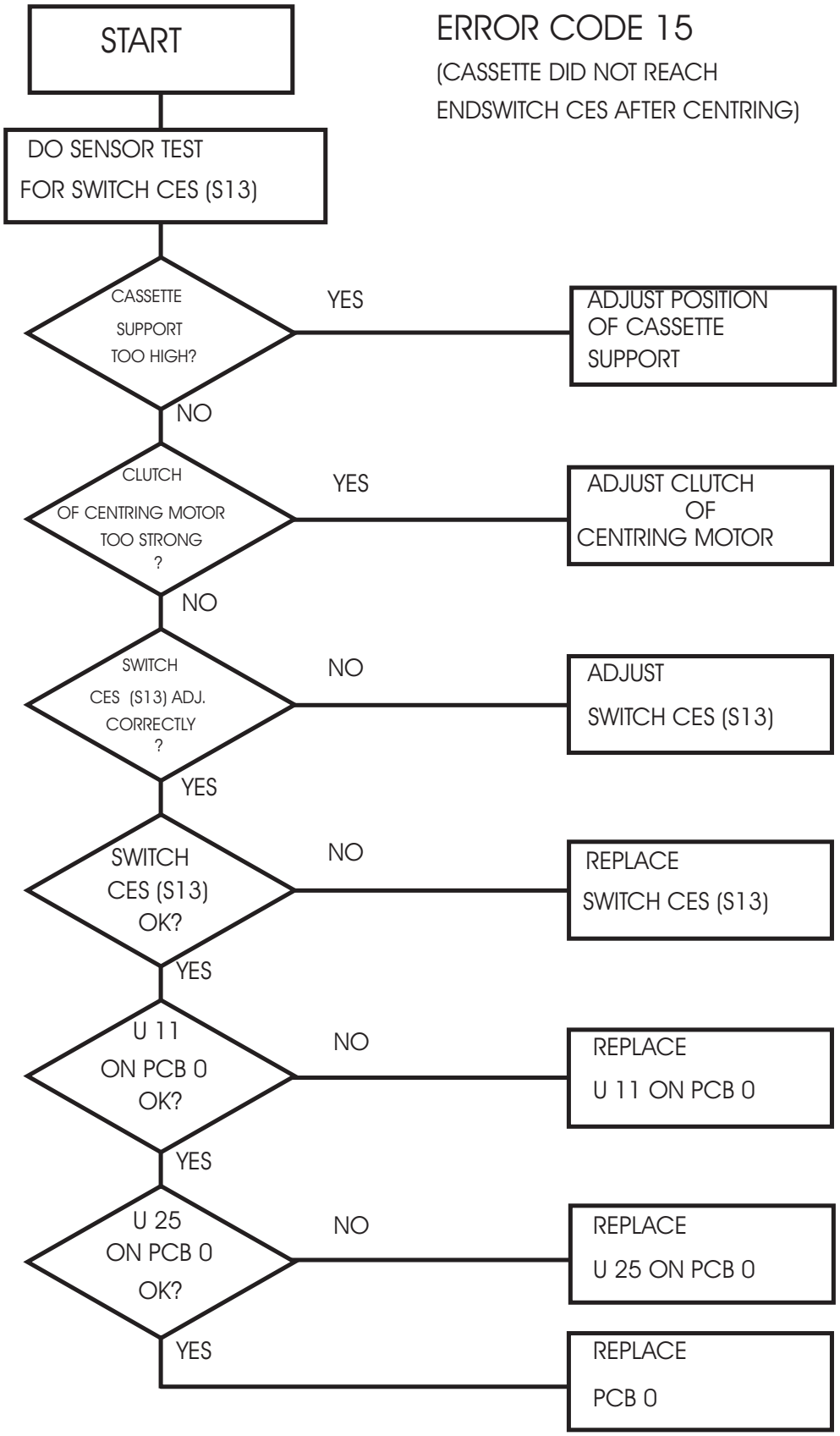

START
ERROR CODE 15
(CASSETTE DID NOT REACH
ENDSWITCH CES AFTER CENTRING)
DO SENSOR TEST
FOR SWITCH CES (S13)
CASSETTE SUPPORT TOO HIGH?
YES
ADJUST POSITION OF CASSETTE SUPPORT
NO
CLUTCH OF CENTRING MOTOR TOO STRONG ?
YES
ADJUST CLUTCH OF CENTRING MOTOR
NO
SWITCH CES (S13) ADJ. CORRECTLY ?
NO
ADJUST SWITCH CES (S13)
YES
SWITCH CES (S13) OK?
NO
REPLACE SWITCH CES (S13)
YES
U 11 ON PCB 0 OK?
NO
REPLACE U 11 ON PCB 0
YES
U 25 ON PCB 0 OK?
NO
REPLACE U 25 ON PCB 0
YES
REPLACE PCB 0

figure 5-14

ERROR CODE 16

(CENTRING BARS
COMPLETELY IN)

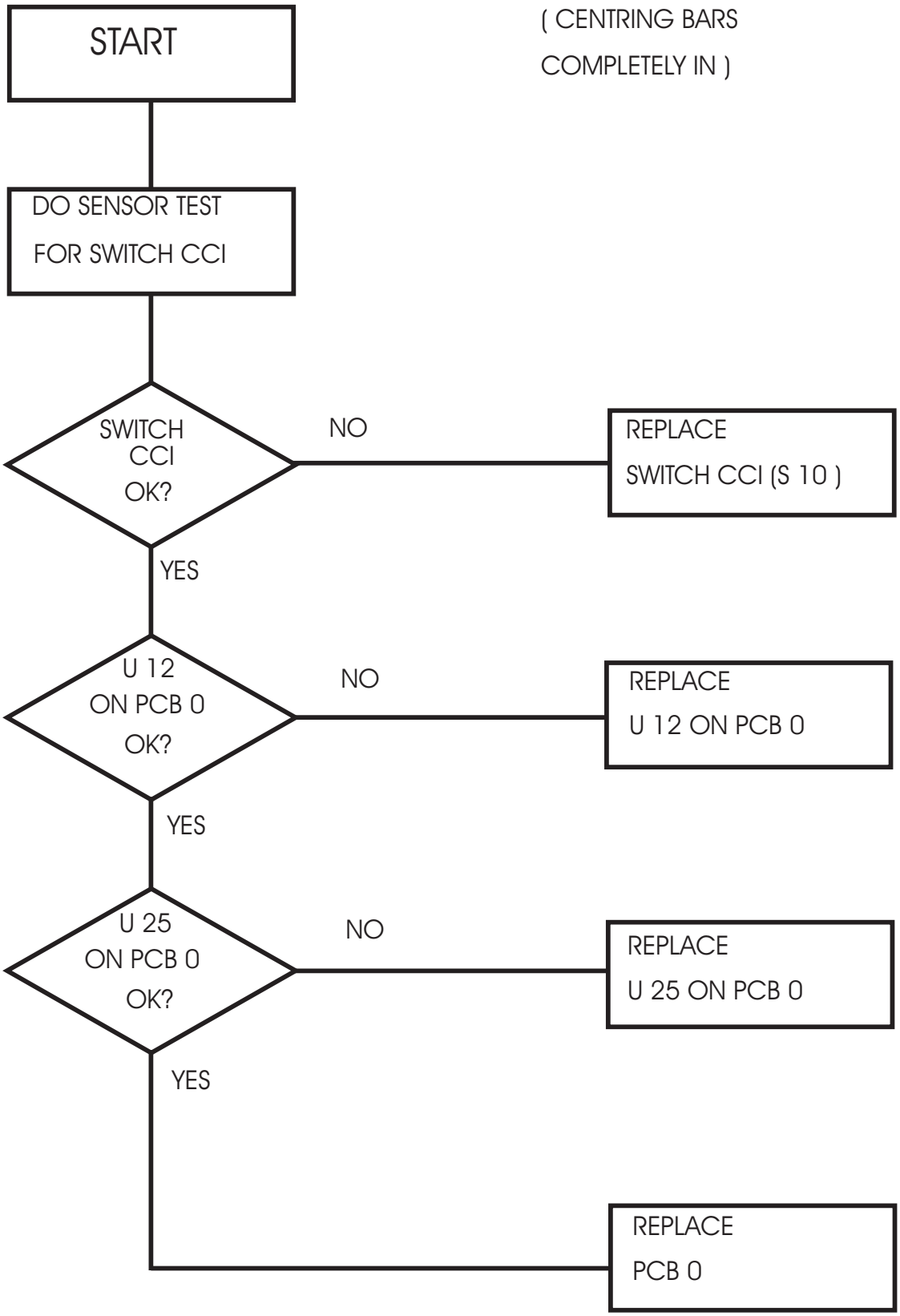


figure 5-15

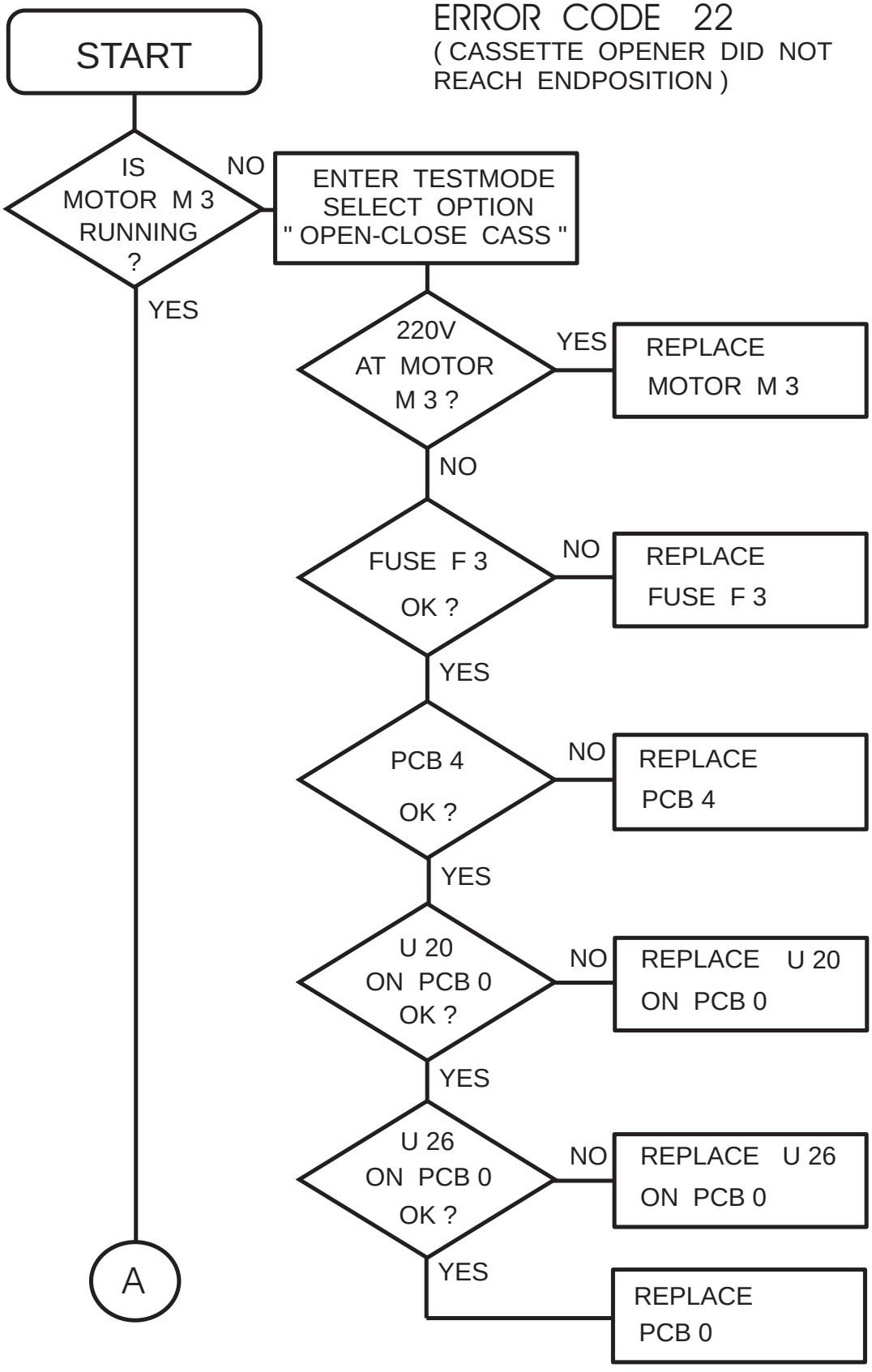

ERROR CODE 22
(CASSETTE OPENER DID NOT REACH ENDPOSITION)
START
IS MOTOR M 3 RUNNING ?
NO
ENTER TESTMODE SELECT OPTION " OPEN-CLOSE CASS "
YES
220V AT MOTOR M 3 ?
YES
REPLACE MOTOR M 3
NO
FUSE F 3 OK ?
NO
REPLACE FUSE F 3
YES
PCB 4 OK ?
NO
REPLACE PCB 4
YES
U 20 ON PCB 0 OK ?
NO
REPLACE U 20 ON PCB 0
YES
U 26 ON PCB 0 OK ?
NO
REPLACE U 26 ON PCB 0
YES
REPLACE PCB 0
A

figure 5-16

ERROR CODE 22
CONT.

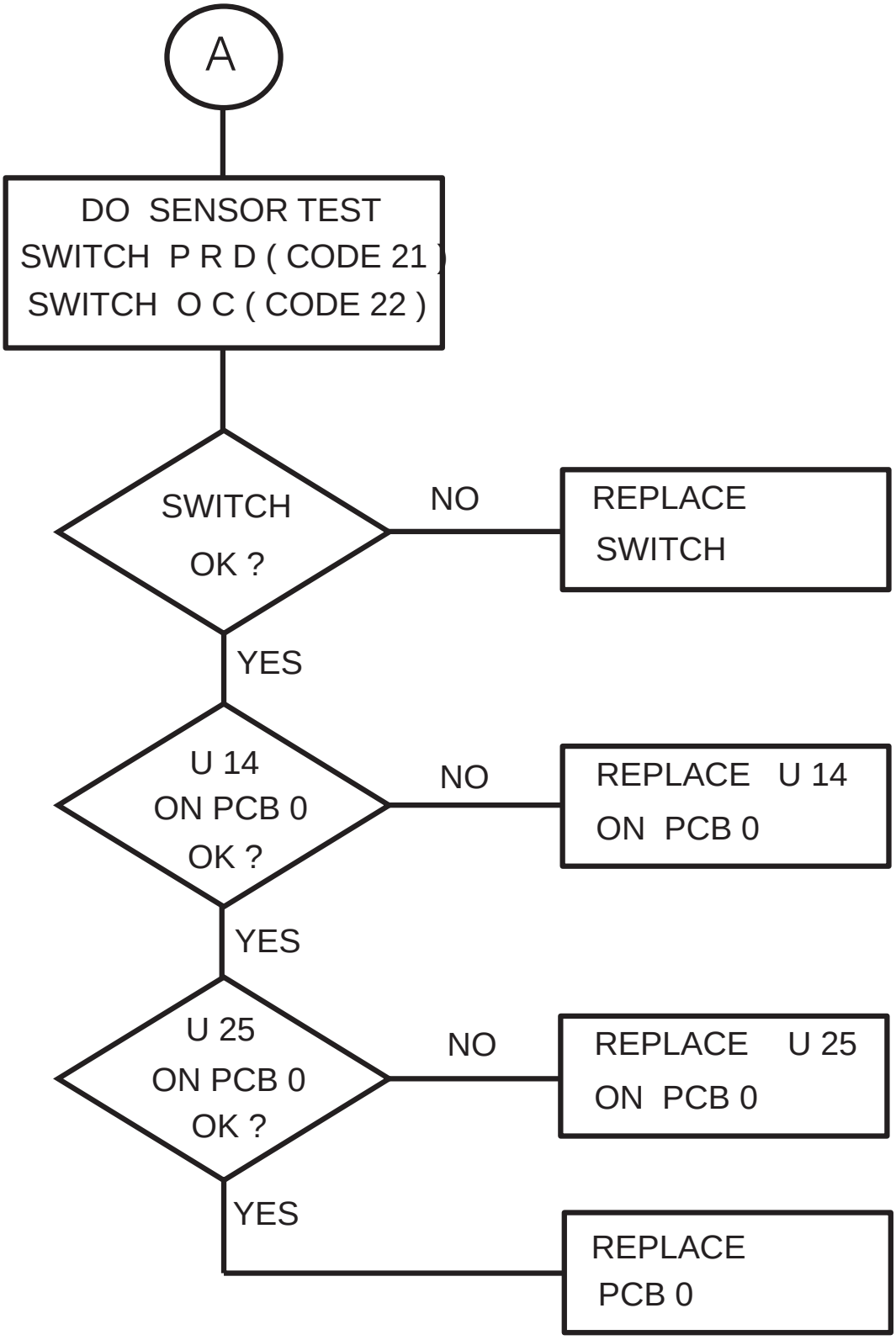


figure 5-17

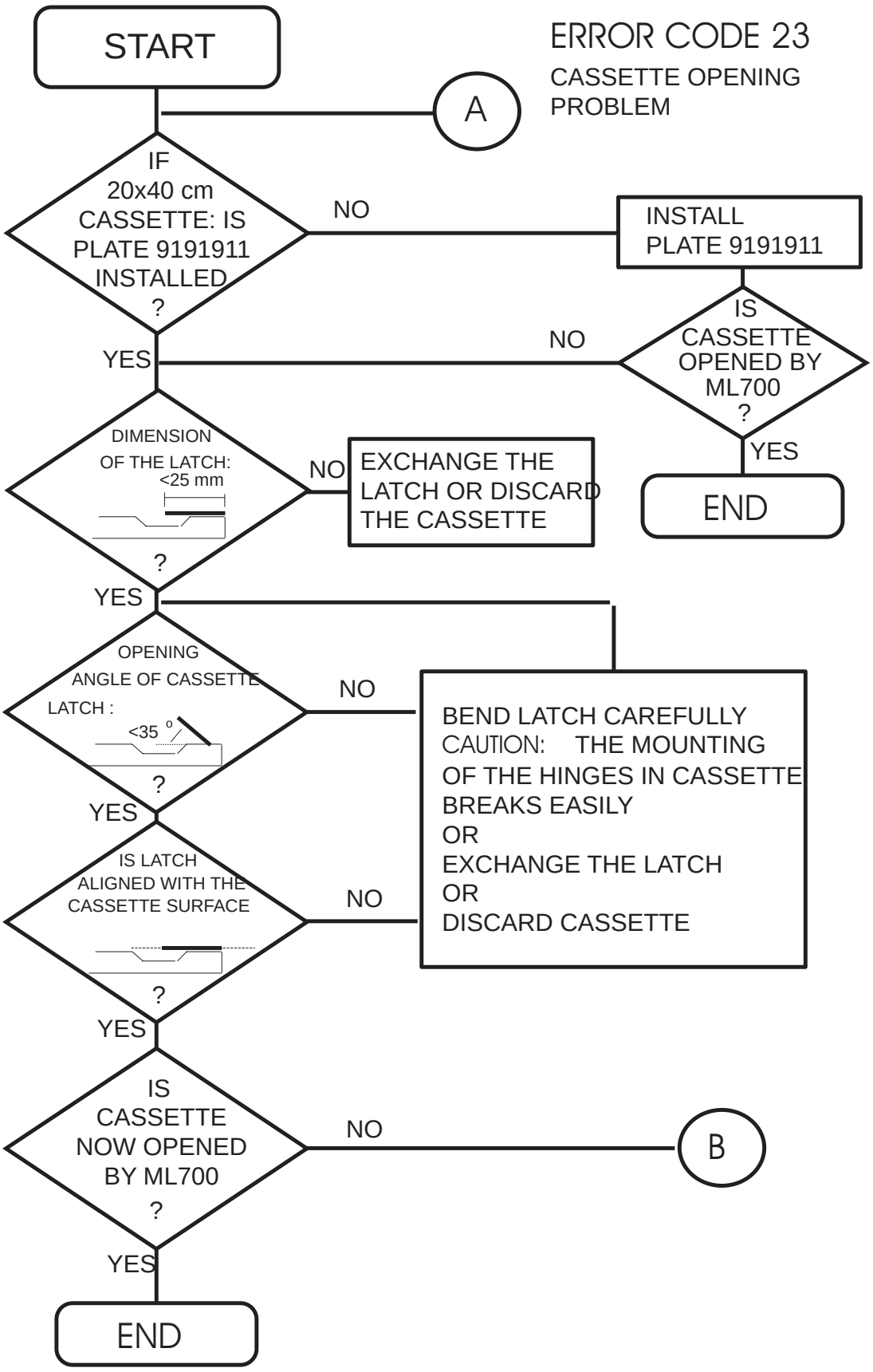

START
ERROR CODE 23
CASSETTE OPENING PROBLEM
A
IF 20x40 cm CASSETTE: IS PLATE 9191911 INSTALLED ?
NO
INSTALL PLATE 9191911
YES
IS CASSETTE OPENED BY ML700 ?
NO
YES
END
DIMENSION OF THE LATCH: <25 mm
?
NO
EXCHANGE THE LATCH OR DISCARD THE CASSETTE
YES
OPENING ANGLE OF CASSETTE LATCH : <35 °
?
NO
BEND LATCH CAREFULLY
CAUTION: THE MOUNTING OF THE HINGES IN CASSETTE BREAKS EASILY
OR
EXCHANGE THE LATCH
OR
DISCARD CASSETTE
YES
IS LATCH ALIGNED WITH THE CASSETTE SURFACE
?
NO
YES
IS CASSETTE NOW OPENED BY ML700 ?
NO
B
YES
END

figure 5-18

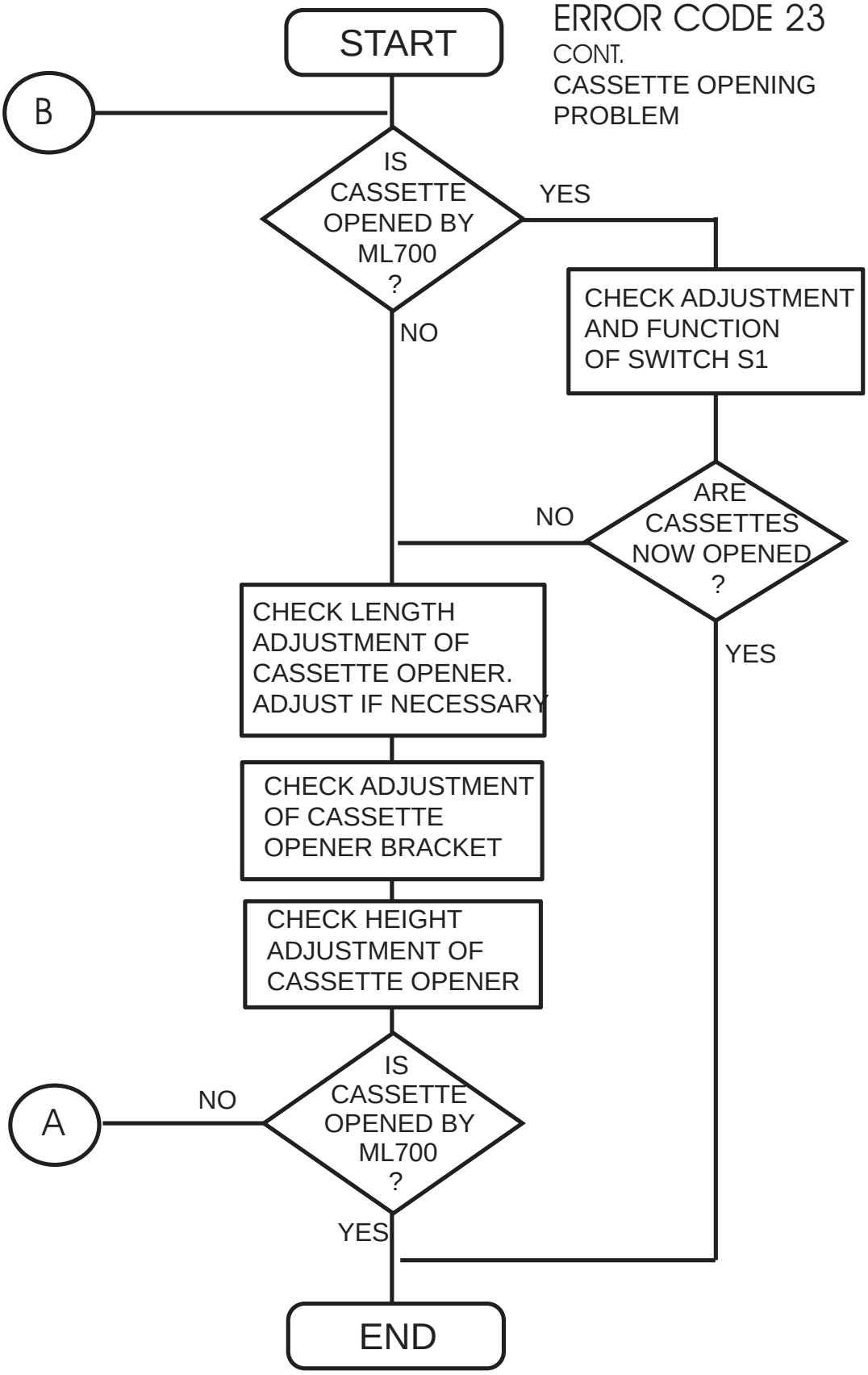

ERROR CODE 23
CONT.
CASSETTE OPENING
PROBLEM
START
B
IS CASSETTE OPENED BY ML700 ?
YES
NO
CHECK ADJUSTMENT AND FUNCTION OF SWITCH S1
ARE CASSETTES NOW OPENED ?
NO
YES
CHECK LENGTH ADJUSTMENT OF CASSETTE OPENER. ADJUST IF NECESSARY
CHECK ADJUSTMENT OF CASSETTE OPENER BRACKET
CHECK HEIGHT ADJUSTMENT OF CASSETTE OPENER
IS CASSETTE OPENED BY ML700 ?
A
NO
YES
END

figure 5-19

ERROR CODE 33. . . 36

(PROBLEMS WITH FILM PRESENCE DETECTOR)

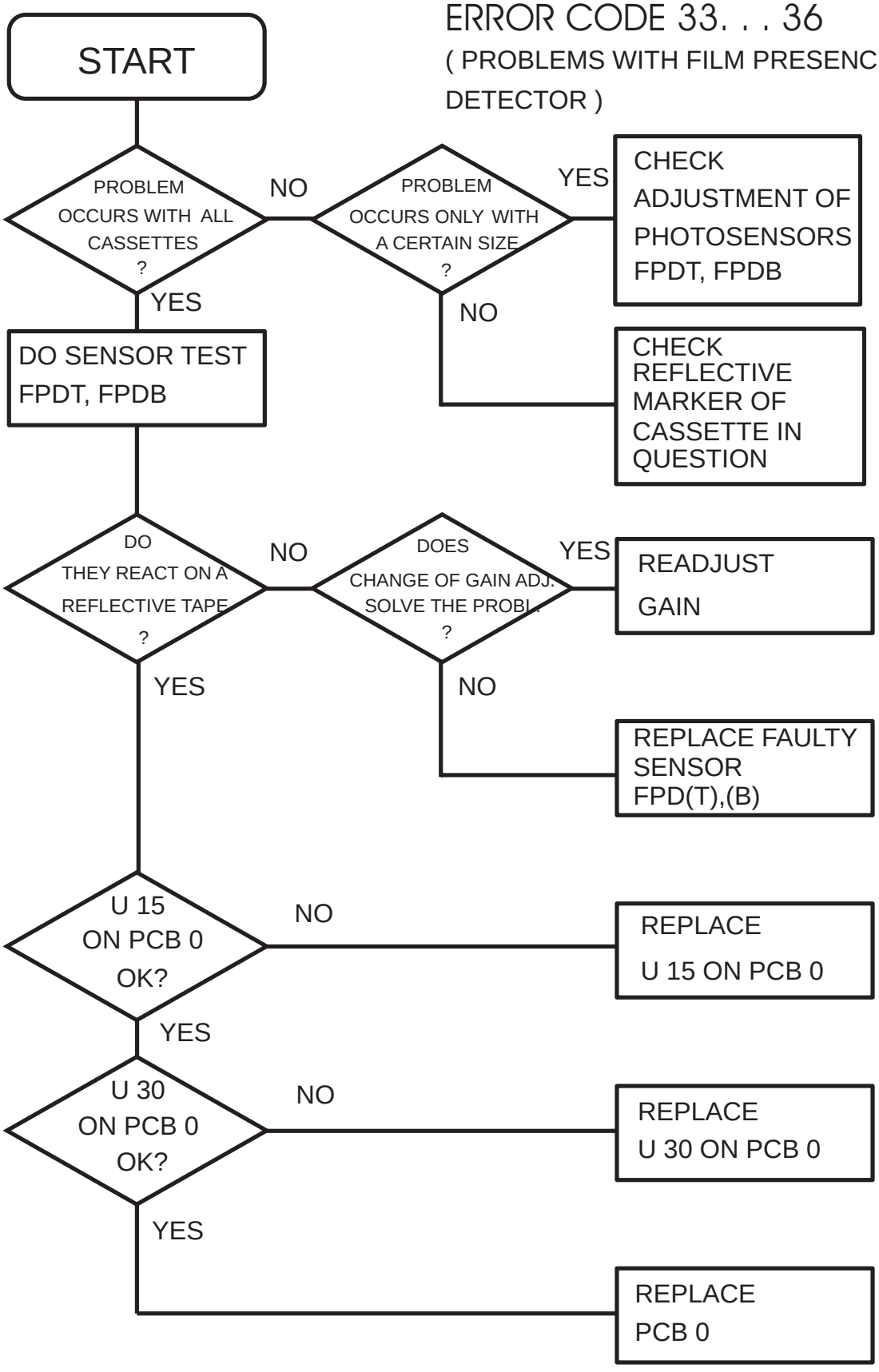


figure 5-20

ERROR CODE 41

(NOT POSSIBLE TO CLOSE CASSETTE)

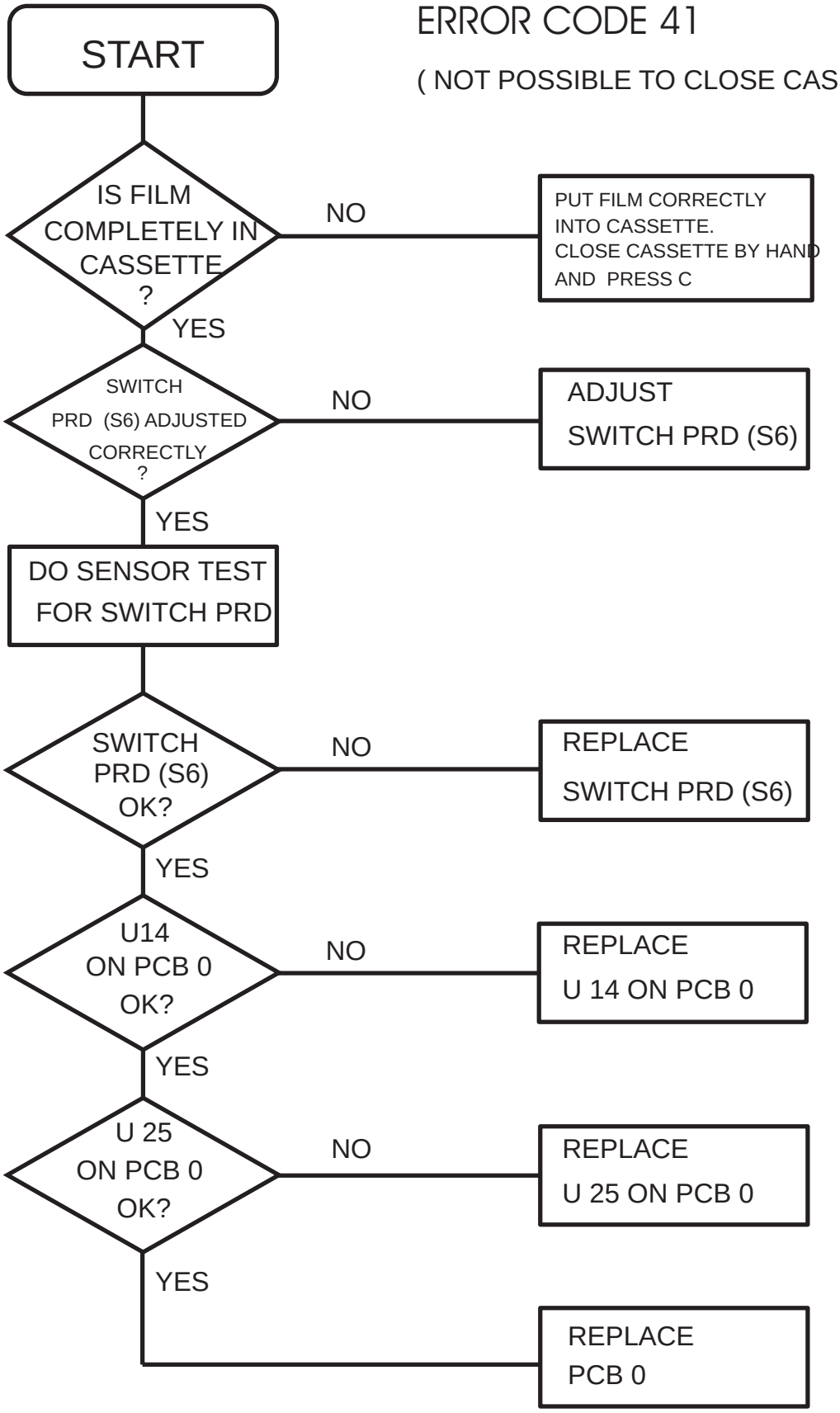


figure 5-21

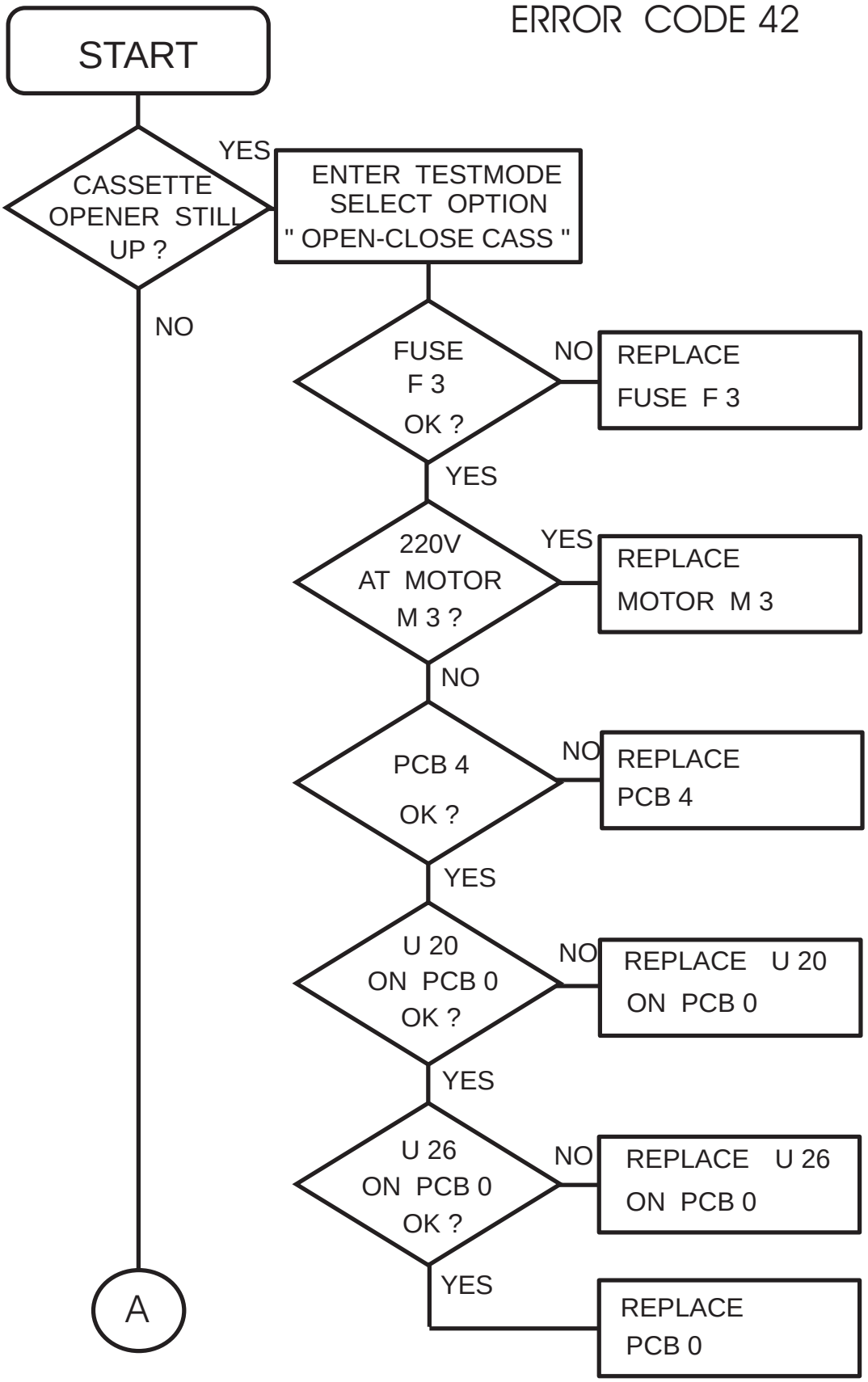

ERROR CODE 42
START
CASSETTE OPENER STILL UP ?
YES
ENTER TESTMODE SELECT OPTION " OPEN-CLOSE CASS "
NO
FUSE F 3 OK ?
NO
REPLACE FUSE F 3
YES
220V AT MOTOR M 3 ?
YES
REPLACE MOTOR M 3
NO
PCB 4 OK ?
NO
REPLACE PCB 4
YES
U 20 ON PCB 0 OK ?
NO
REPLACE U 20 ON PCB 0
YES
U 26 ON PCB 0 OK ?
NO
REPLACE U 26 ON PCB 0
YES
REPLACE PCB 0
A

figure 5-22

ERROR CODE 42
CONT.

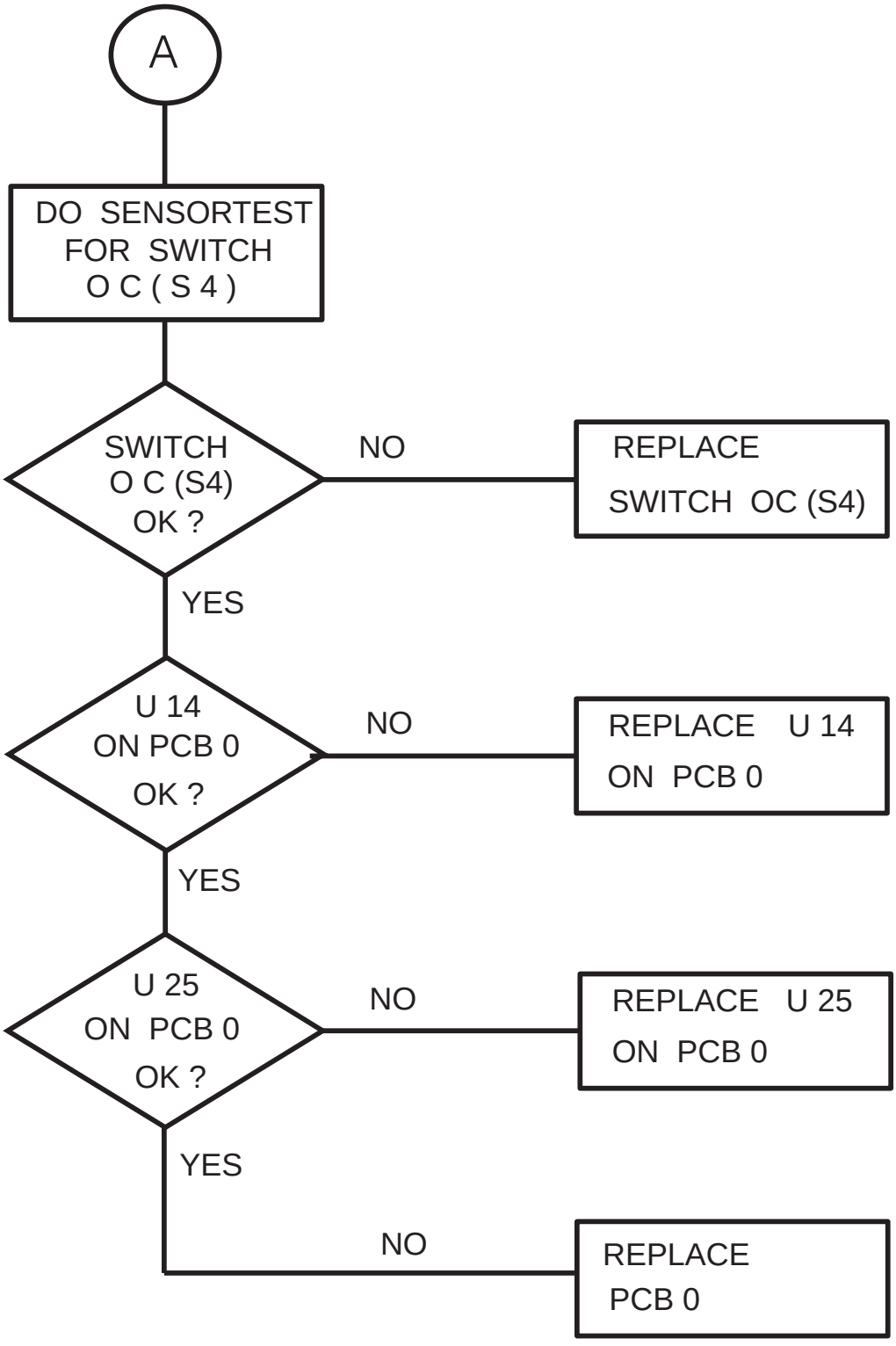


figure 5-23

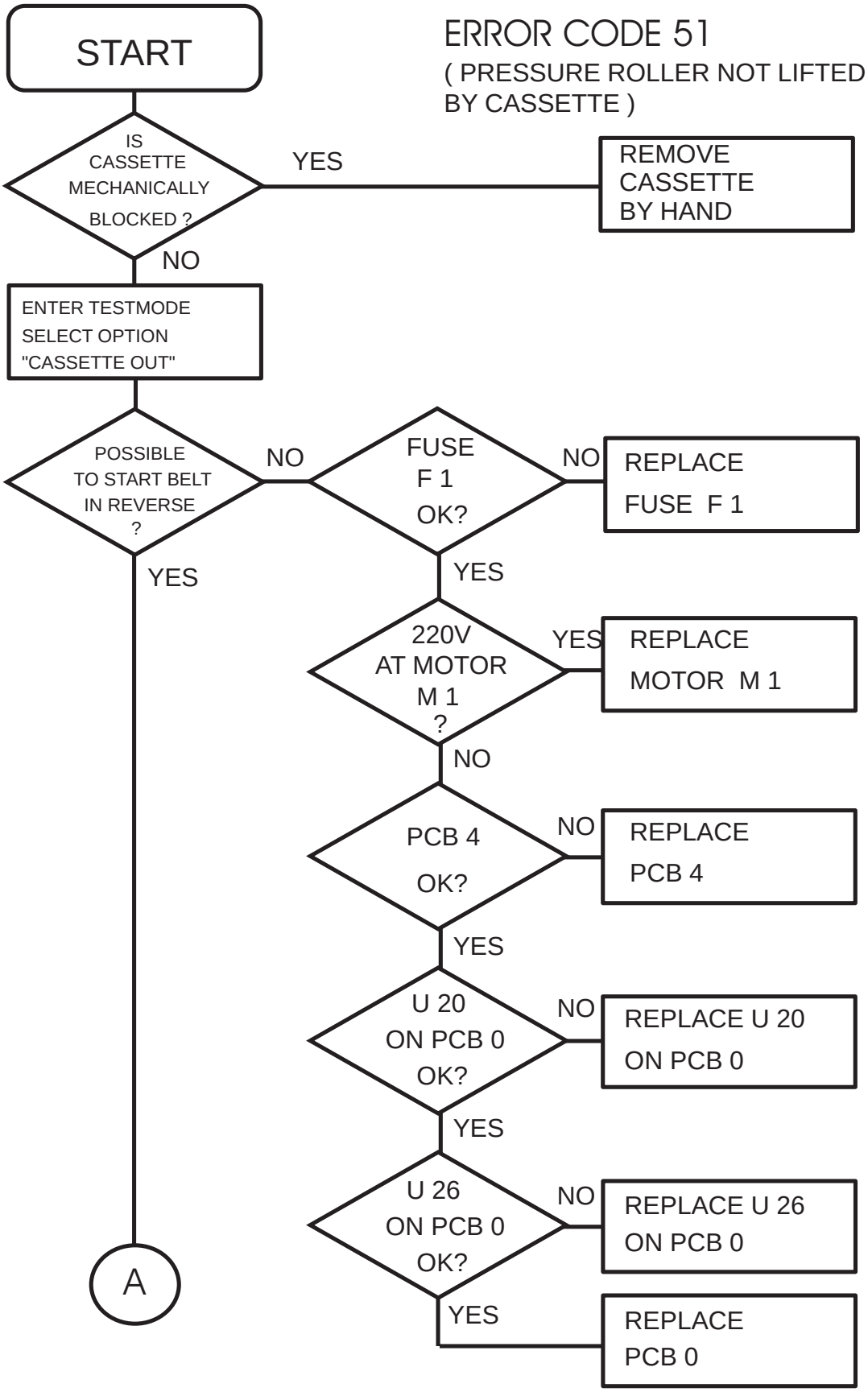

START
ERROR CODE 51
(PRESSURE ROLLER NOT LIFTED BY CASSETTE)
IS CASSETTE MECHANICALLY BLOCKED ?
YES
REMOVE CASSETTE BY HAND
NO
ENTER TESTMODE SELECT OPTION "CASSETTE OUT"
POSSIBLE TO START BELT IN REVERSE ?
NO
FUSE F 1 OK?
NO
REPLACE FUSE F 1
YES
YES
220V AT MOTOR M 1 ?
YES
REPLACE MOTOR M 1
NO
PCB 4 OK?
NO
REPLACE PCB 4
YES
U 20 ON PCB 0 OK?
NO
REPLACE U 20 ON PCB 0
YES
U 26 ON PCB 0 OK?
NO
REPLACE U 26 ON PCB 0
YES
REPLACE PCB 0
A

figure 5-24

ERROR CODE 51
CONT.

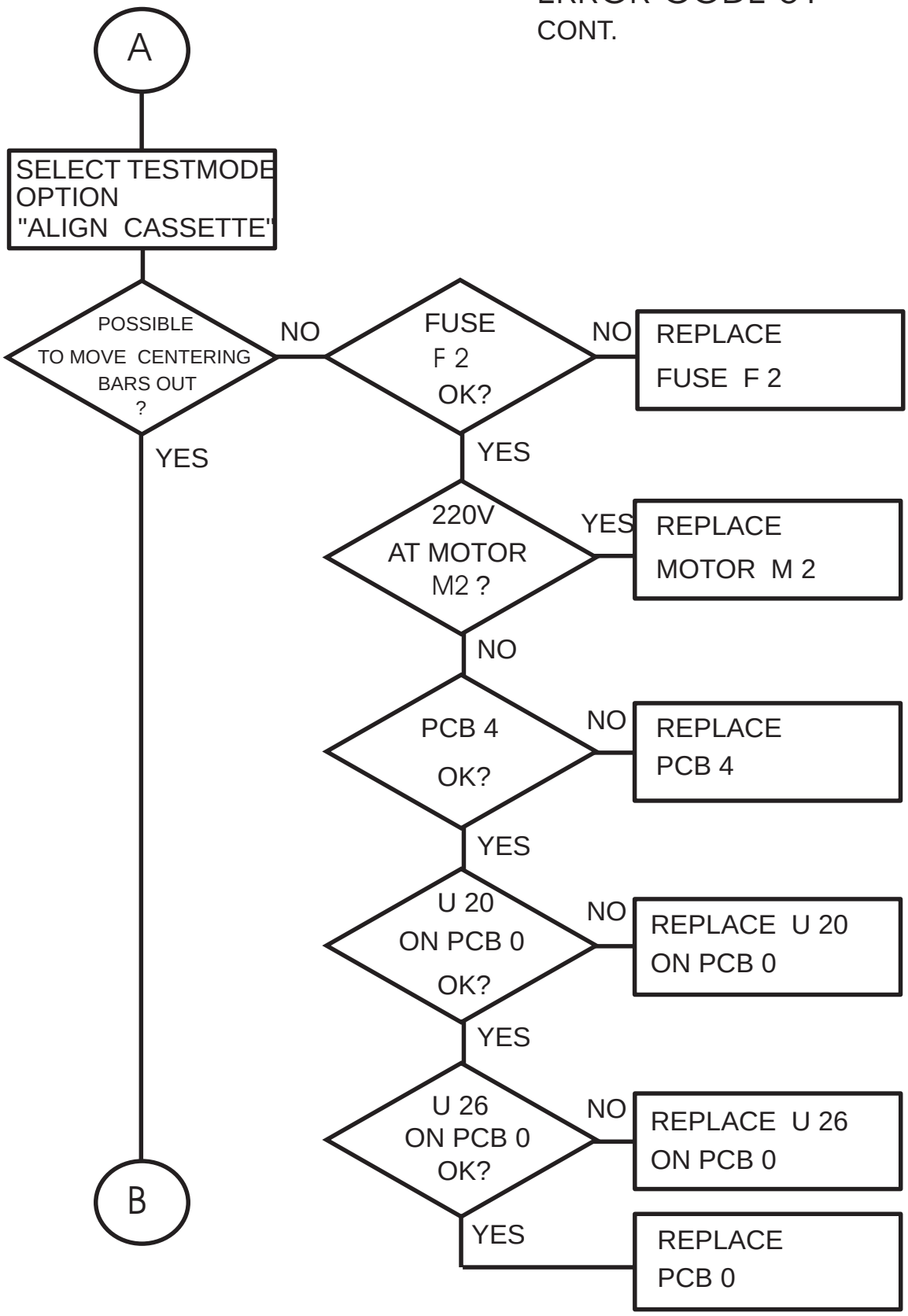


figure 5-25

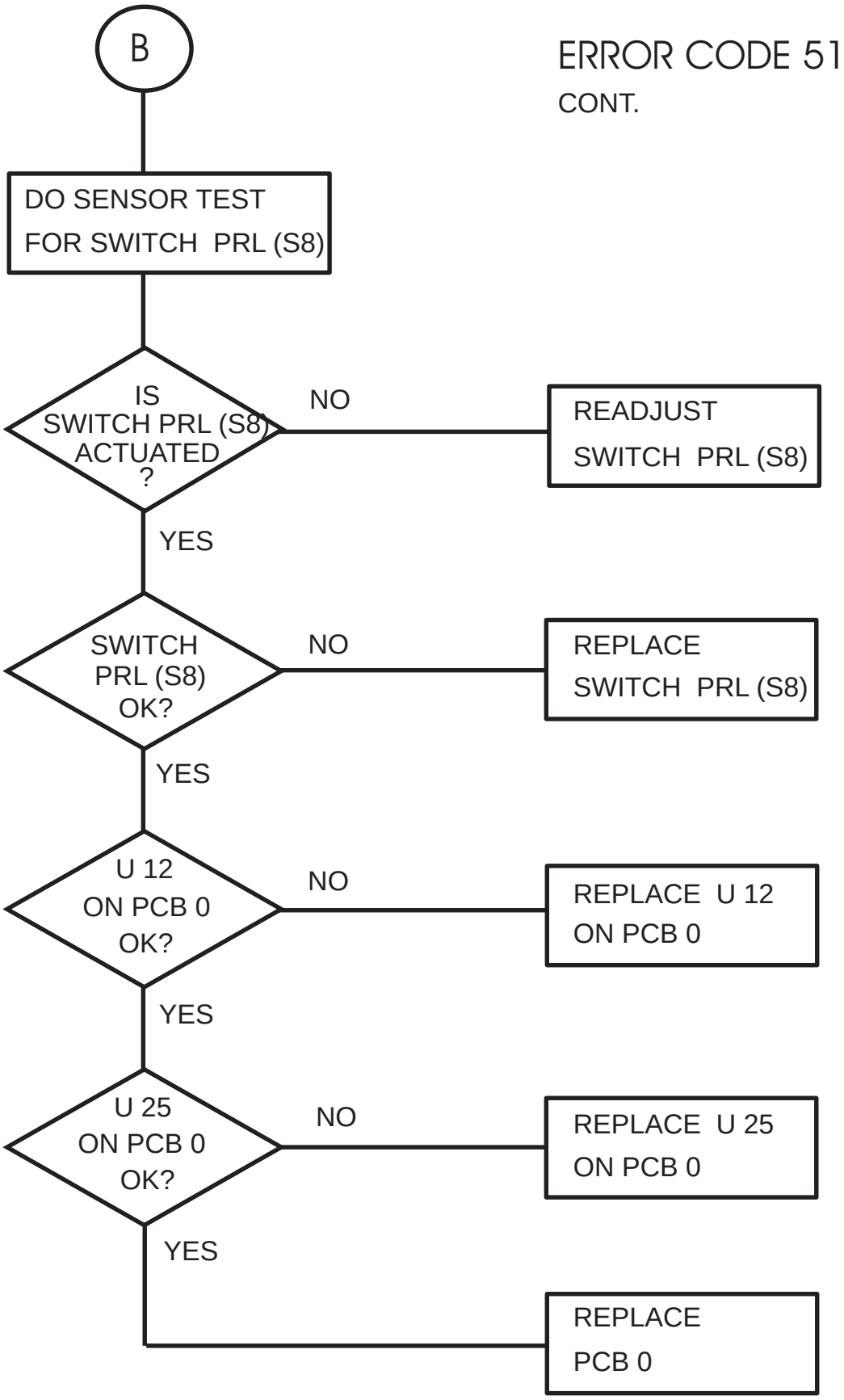

B
ERROR CODE 51
CONT.
DO SENSOR TEST
FOR SWITCH PRL (S8)
IS
SWITCH PRL (S8)
ACTUATED
?
NO
READJUST
SWITCH PRL (S8)
YES
SWITCH
PRL (S8)
OK?
NO
REPLACE
SWITCH PRL (S8)
YES
U 12
ON PCB 0
OK?
NO
REPLACE U 12
ON PCB 0
YES
U 25
ON PCB 0
OK?
NO
REPLACE U 25
ON PCB 0
YES
REPLACE
PCB 0

figure 5-26

ERROR CODE 52

(PRESSURE ROLLER NOT LIFTED BY MOTOR)

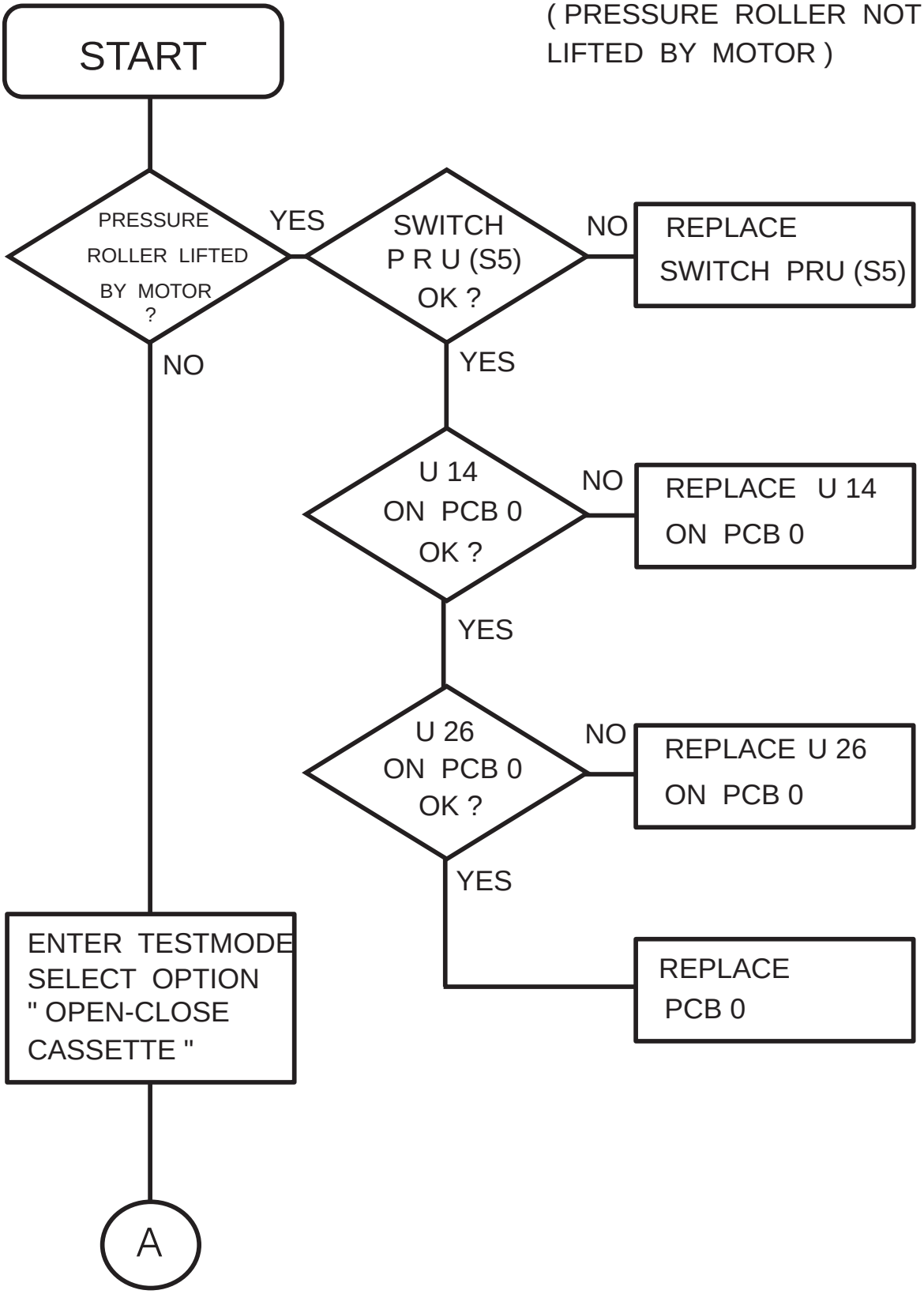


figure 5-27

ERROR CODE 52
CONT.

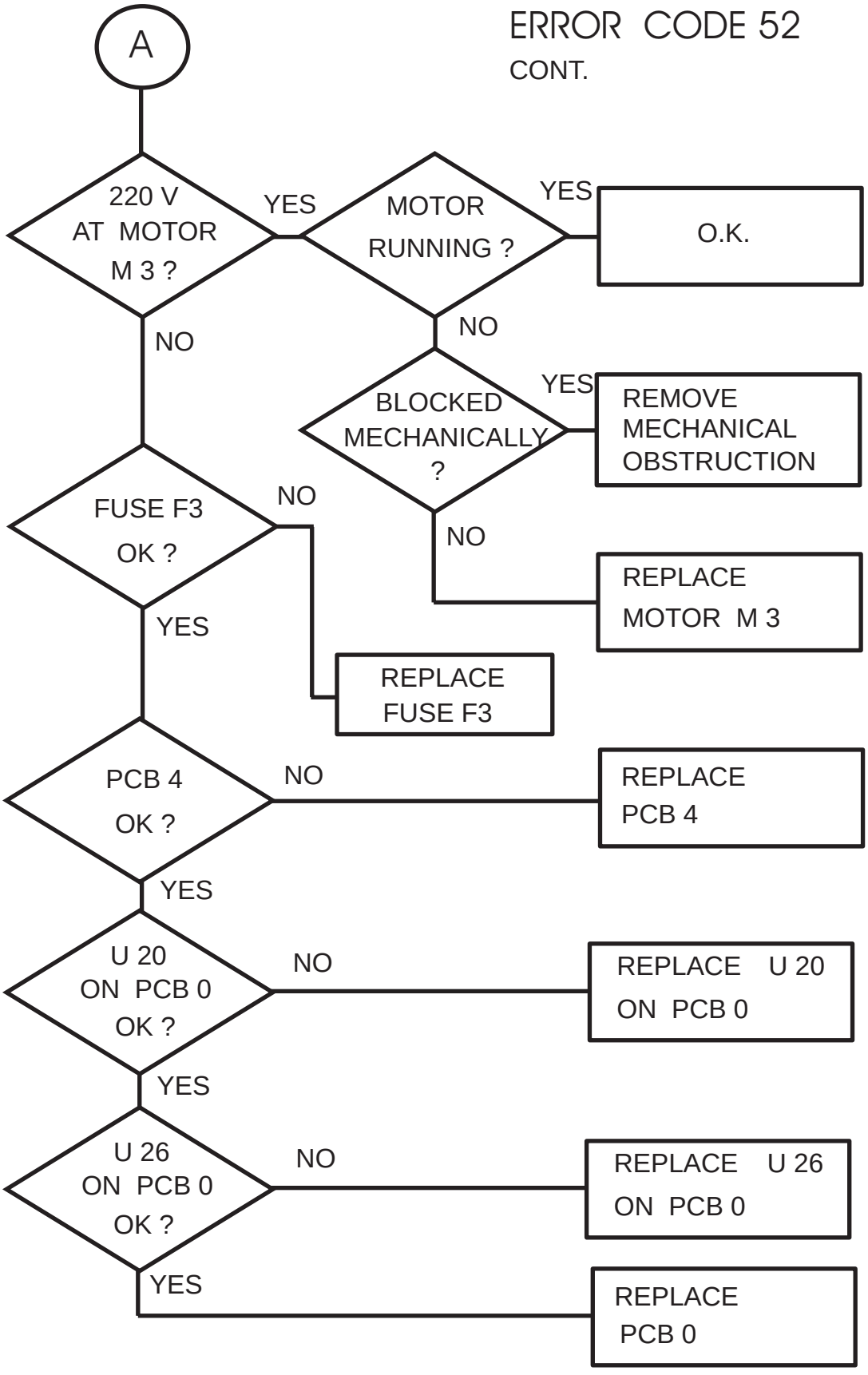


figure 5-28

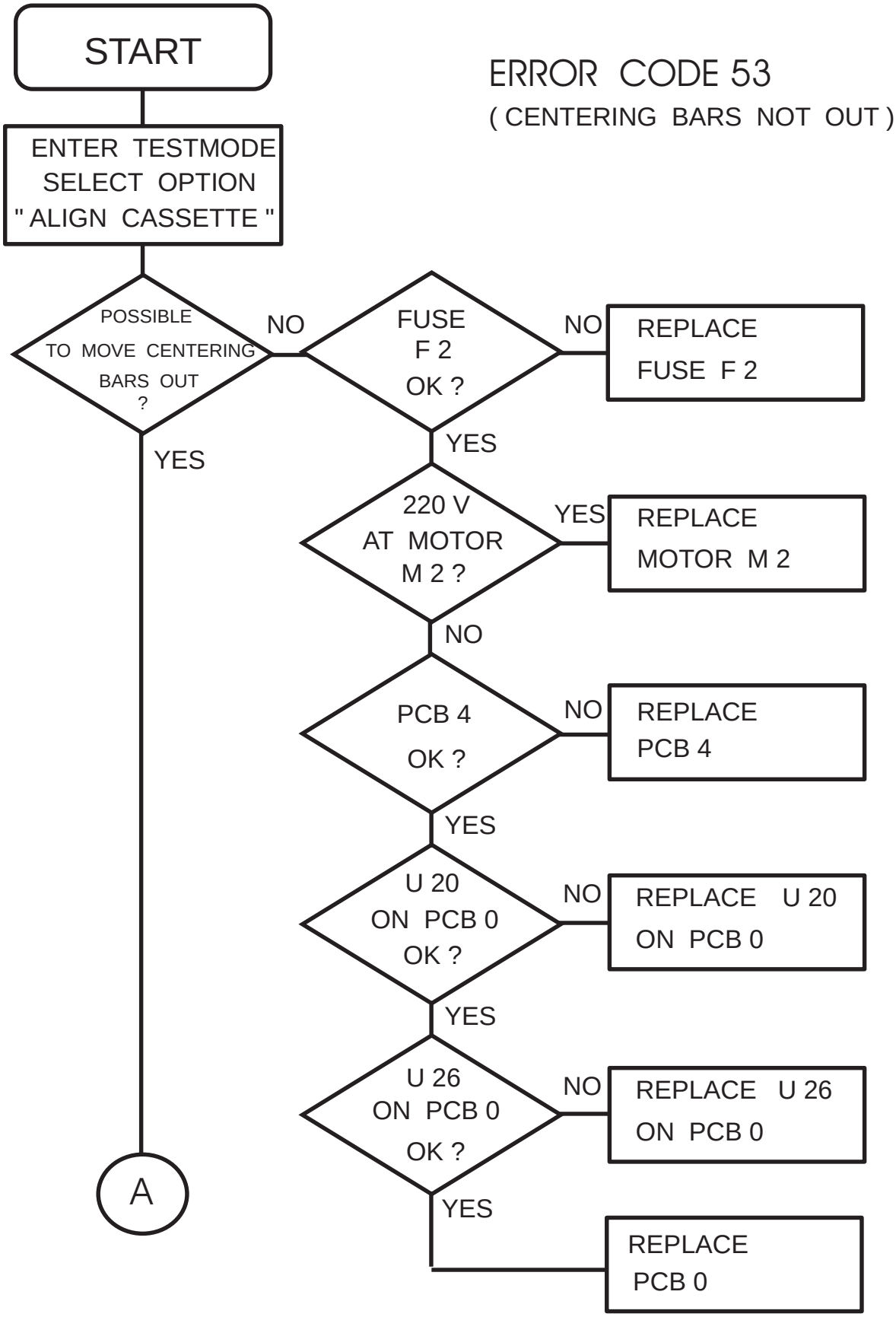

START
ERROR CODE 53
(CENTERING BARS NOT OUT)
ENTER TESTMODE
SELECT OPTION
" ALIGN CASSETTE "
POSSIBLE
TO MOVE CENTERING
BARS OUT
?
NO
FUSE
F 2
OK ?
NO
REPLACE
FUSE F 2
YES
YES
220 V
AT MOTOR
M 2 ?
YES
REPLACE
MOTOR M 2
NO
PCB 4
OK ?
NO
REPLACE
PCB 4
YES
U 20
ON PCB 0
OK ?
NO
REPLACE U 20
ON PCB 0
YES
U 26
ON PCB 0
OK ?
NO
REPLACE U 26
ON PCB 0
YES
REPLACE
PCB 0
A

figure 5-29

ERROR CODE 53

CONT.

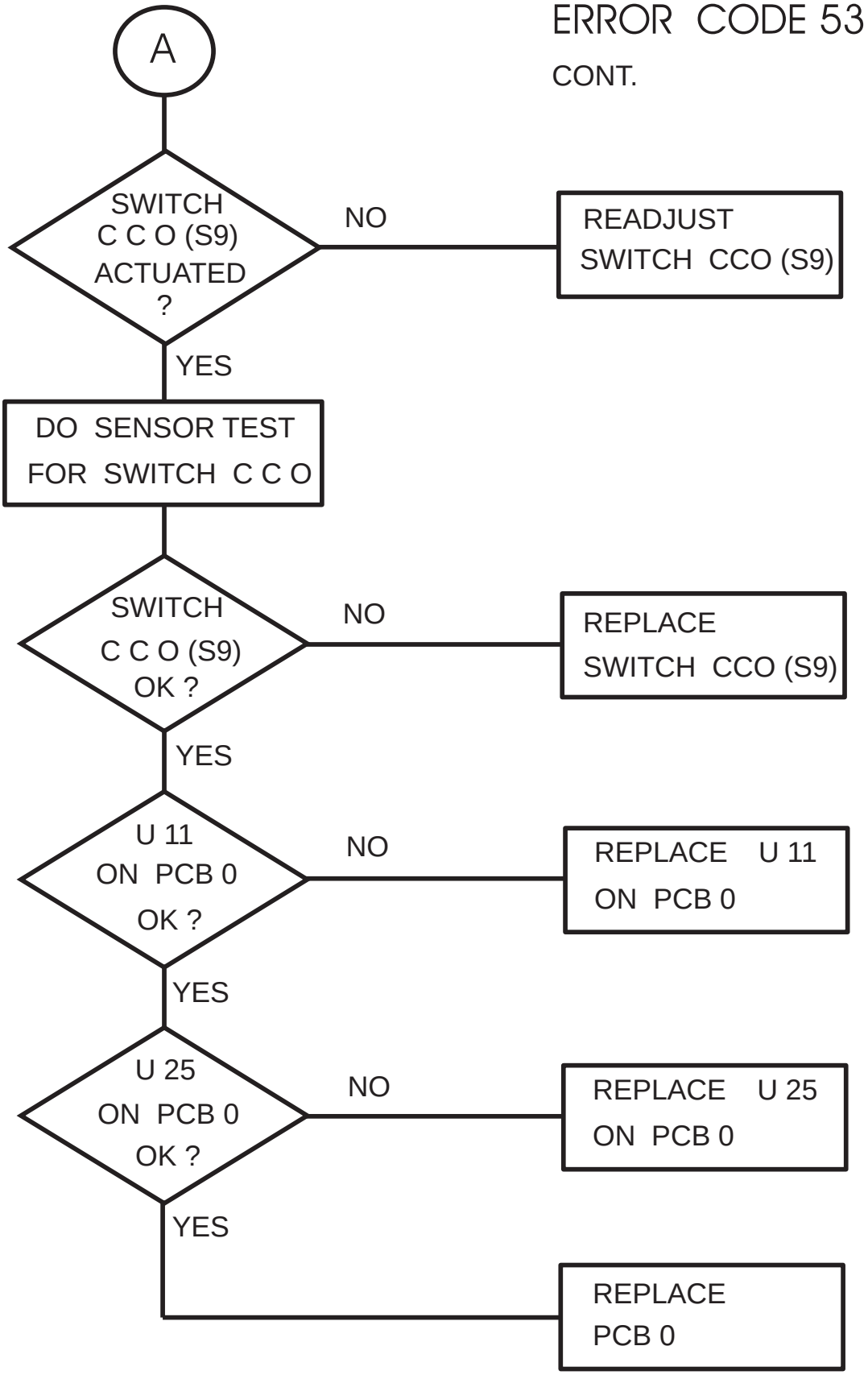


figure 5-30

ERROR CODE 54

PRESSURE ROLLER NOT LOWERED BY MOTOR

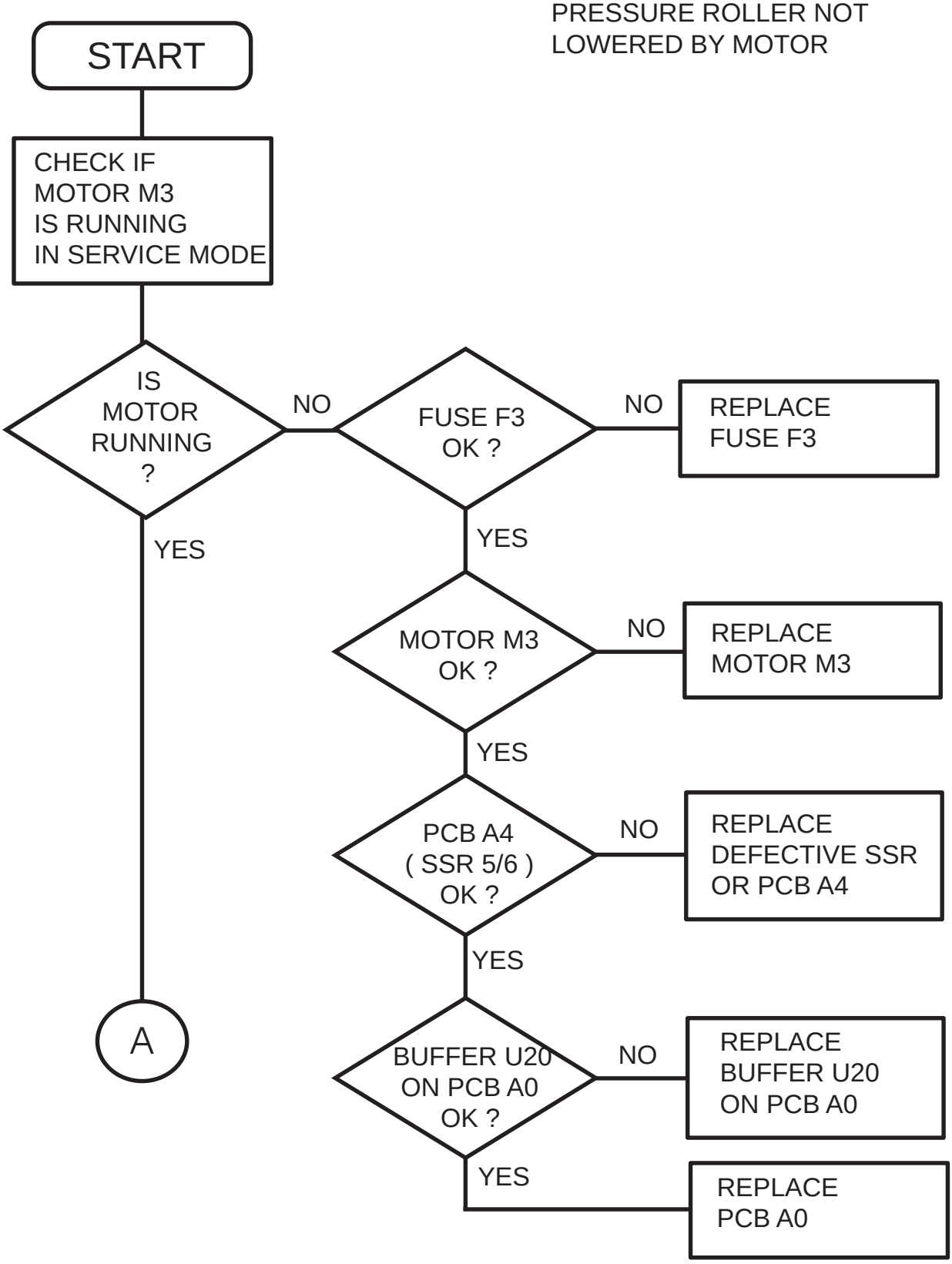


figure 5-31

ERROR CODE 54
CONT.

PRESSURE ROLLER NOT LOWERED BY MOTOR

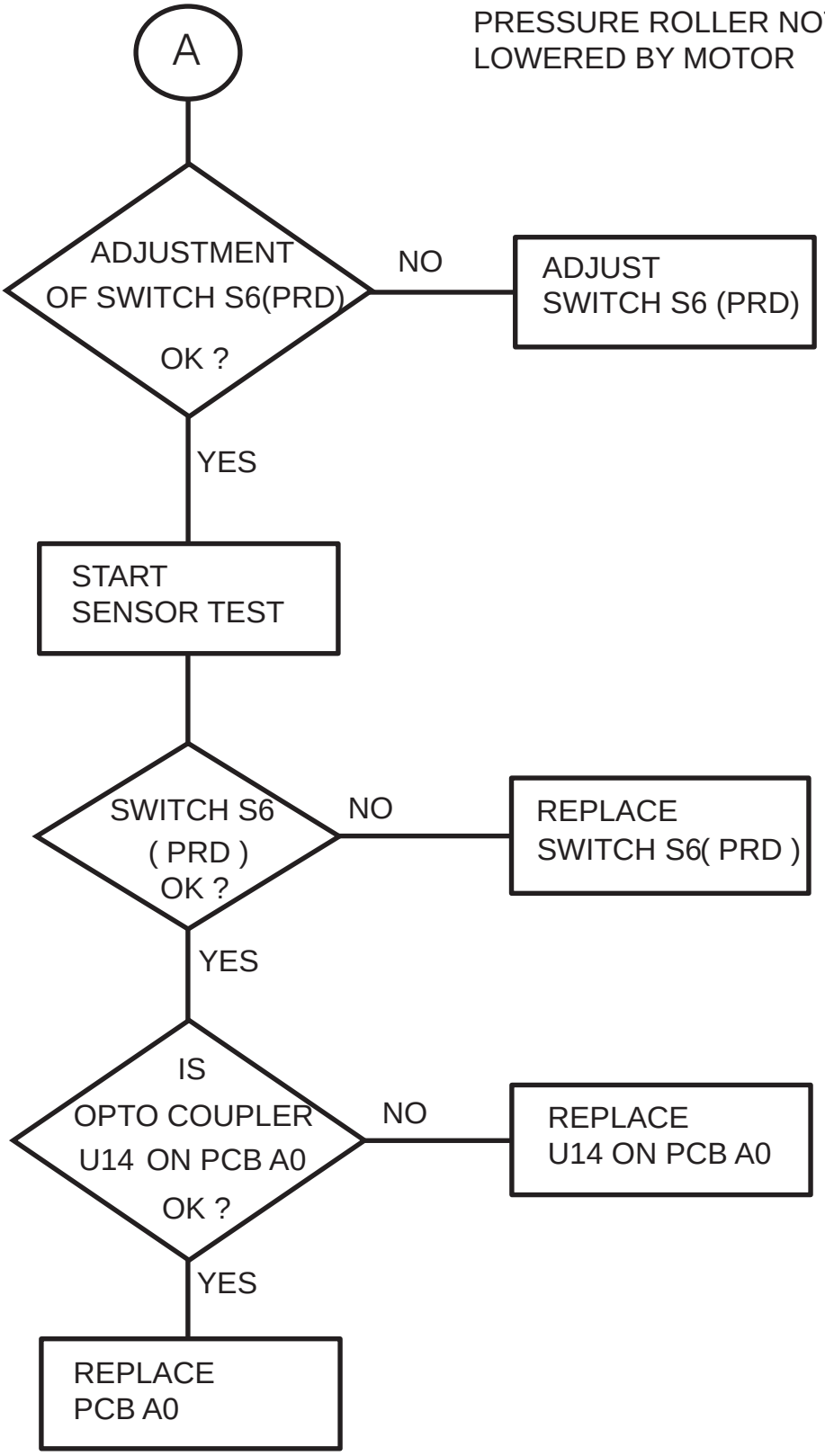


figure 5-32

ERROR CODE 61

(No MAGAZINE available for
selected CASSETTE size)

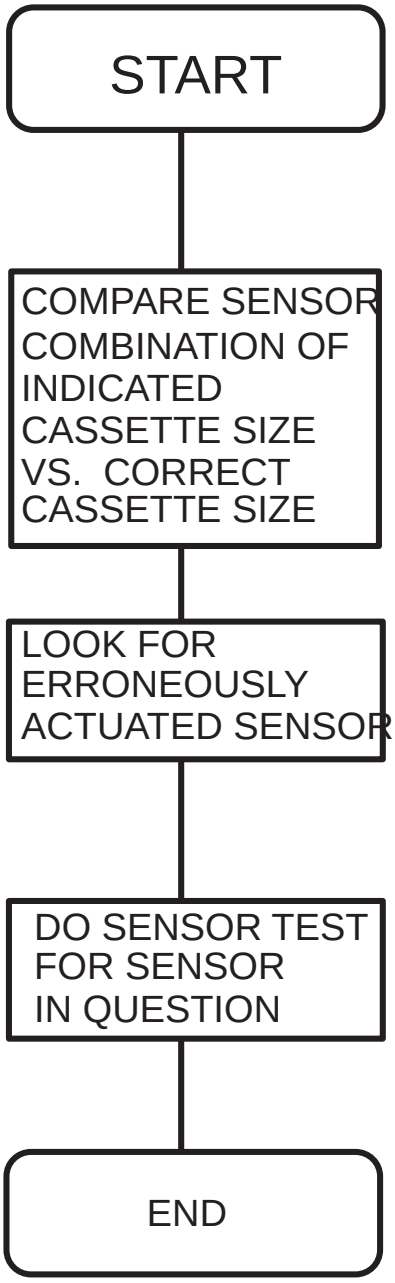


figure 5-33

SENSOR COMBINATION FOR CASSETTE SIZE DETECTION.

LENGTH PULSES	SENSOR S2 / CW0	SENSOR S3 / CW1	SENSOR B5 / FPDB	SENSOR TYPE 2 CT2	CASSETTE CODE	CASSETTE SIZE
81	NO	-	-	NO	9	18x43cm X
81	NO	-	-	YES	25	18x43cm X TYPE 2
81	YES	-	-	NO	12	35x43cm X
81	YES	-	-	YES	28	35x43cm X TYPE 2
82	NO	-	-	NO	13	20x40cm X
82	NO	-	-	YES	29	20x40cm X TYPE 2
82	YES	-	-	NO	14	30x40cm X
82	YES	-	-	YES	30	30x40 cm X TYPE 2
83				NO	7	**DOES NOT EXIST** 11x14 inch X
83				YES	23	**DOES NOT EXIST** 11x14 inch TYPE 2
84	-	NO	-	NO	6	30x35cm X
84	-	NO	-	YES	22	30x35cm X TYPE 2
84	-	YES		NO	4	35x35cm X
84	-	YES		YES	20	35x35cm X TYPE 2
85 - 86	NO	-	YES	NO	3	8x10 in V
85 - 86	NO	-	YES	YES	19	8x10 in V TYPE 2
85 - 86	-	-	NO	NO	11	24x30cm M
LENGTH PULSES	**SENSOR S2 / CW0**	**SENSOR S3 / CW1**	**SENSOR B5 / FPDB**	SENSOR TYPE 2 CT2	**CASSETTE CODE**	**CASSETTE SIZE**
85 - 86	-	-	NO	YES	27	24x30cm M TYPE 2

85 - 86	YES	-	YES	NO	10	24x30cm X
85 - 86	YES	-	YES	YES	26	24x30cm X TYPE 2
87	-	-	-	NO	5	8x10 in X
87	-	-	-	YES	21	8x10 in X TYPE2
88	NO	-	NO	NO	8	18x24cm M
88	NO	-	NO	YES	24	18x24cm M TYPE2
88	NO	-	YES	NO	1	18x24cm X
88	NO	-	YES	YES	17	18x24cm X TYPE2
88	YES	-	YES	NO	2	24x24cm X
88	YES	-	YES	YES	18	24x24cm X TYPE 2
89						**ERROR too many count pulses from SENSOR B1**
FF	-	-	-	NO	0	-
FF	-	-	-	YES	16	-
-	-	-	-	NO	15	-
-	-	-	-	YES	31	-

SENSOR TEST CS

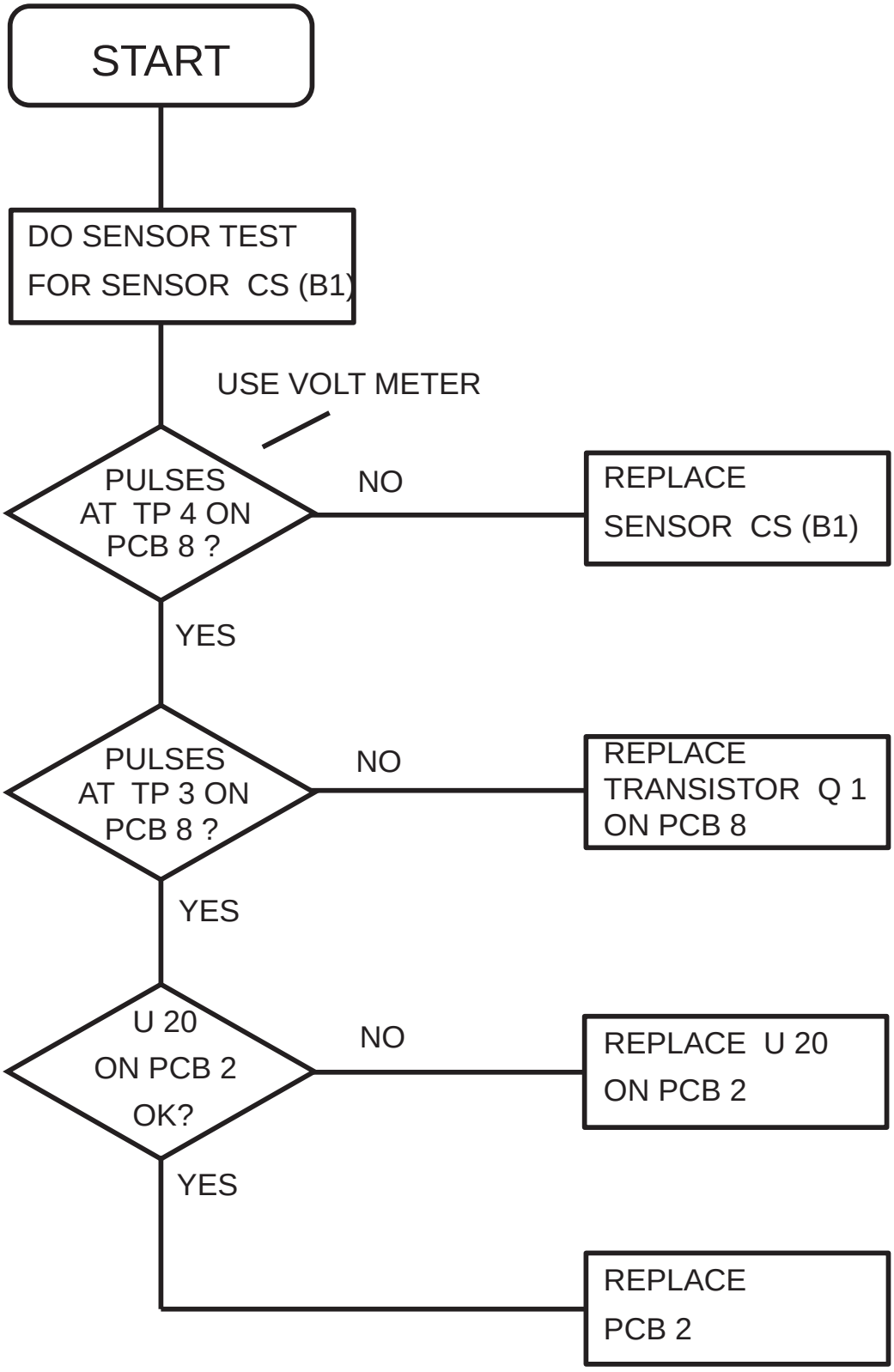


figure 5-34

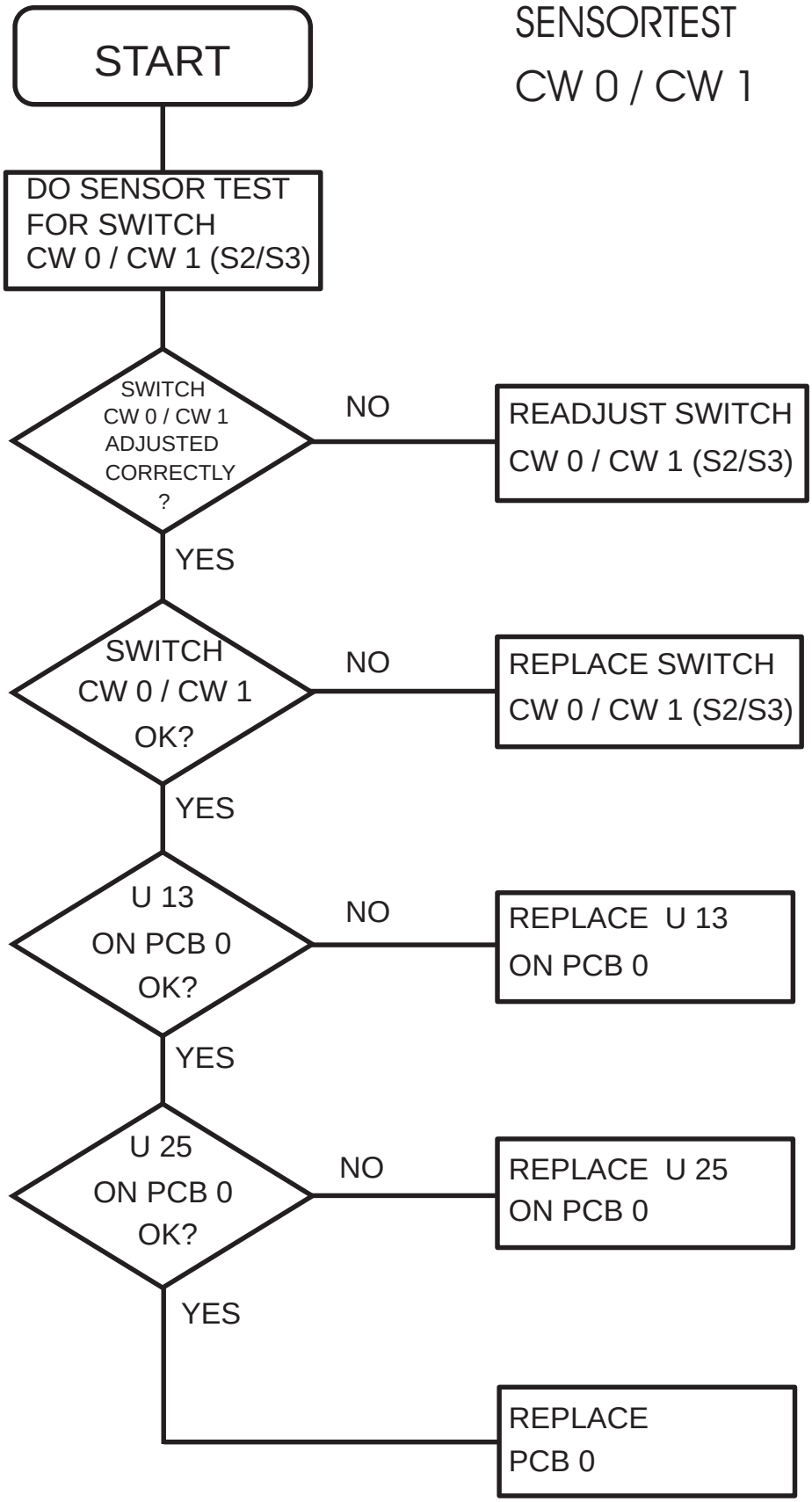

SENSORTEST
CW 0 / CW 1
START
DO SENSOR TEST
FOR SWITCH
CW 0 / CW 1 (S2/S3)
SWITCH
CW 0 / CW 1
ADJUSTED
CORRECTLY
?
NO
READJUST SWITCH
CW 0 / CW 1 (S2/S3)
YES
SWITCH
CW 0 / CW 1
OK?
NO
REPLACE SWITCH
CW 0 / CW 1 (S2/S3)
YES
U 13
ON PCB 0
OK?
NO
REPLACE U 13
ON PCB 0
YES
U 25
ON PCB 0
OK?
NO
REPLACE U 25
ON PCB 0
YES
REPLACE
PCB 0

figure 5-35

SENSORTEST
F P D B / C T 2

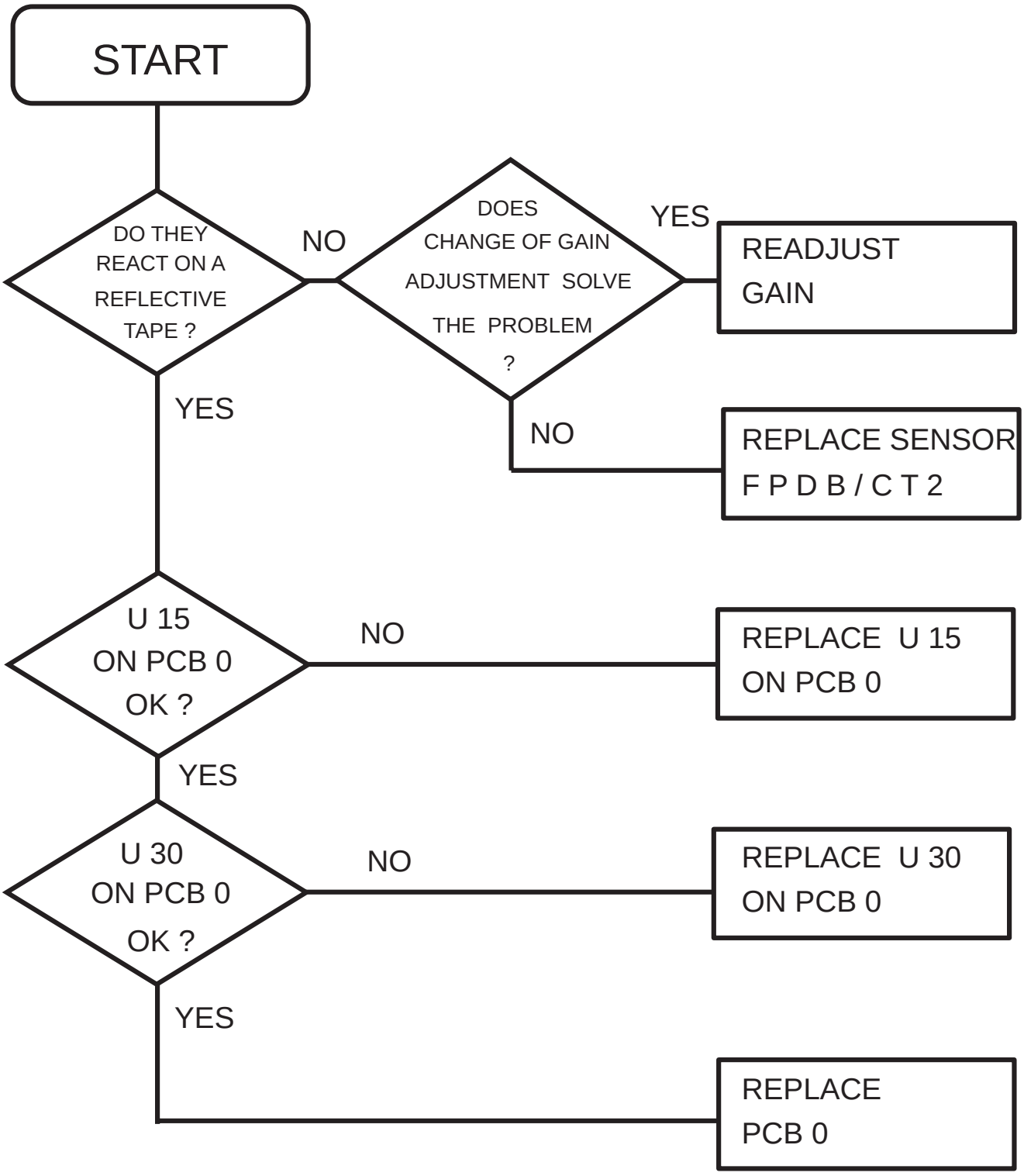


figure 5-36

ERROR CODE 71

(FILMJAM IN CASSETTE UNLOAD MECHANISM)

THIS PROBLEM WAS CAUSED BY THE PREVIOUS FILM

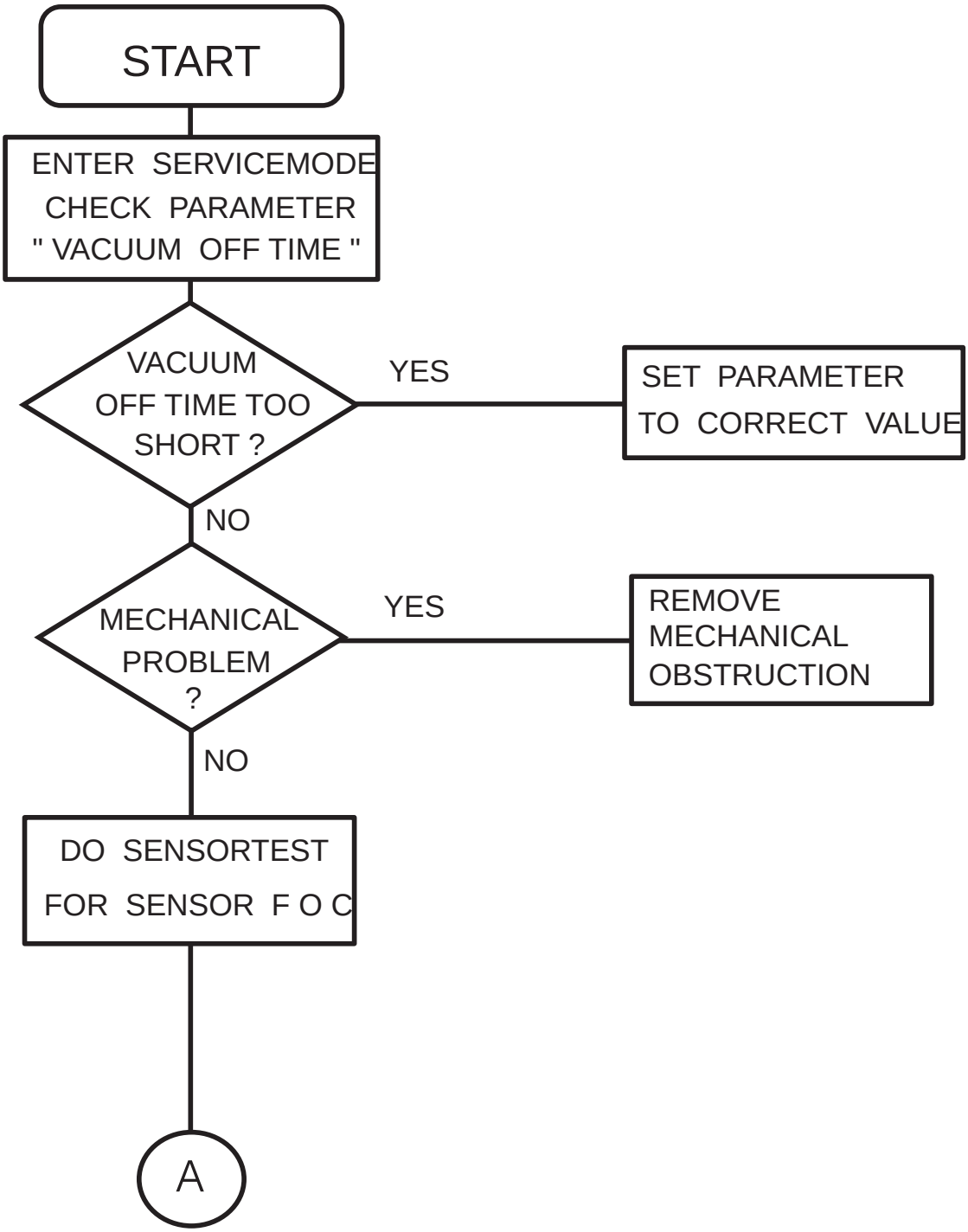


figure 5-37

ERROR CODE 71
CONT.

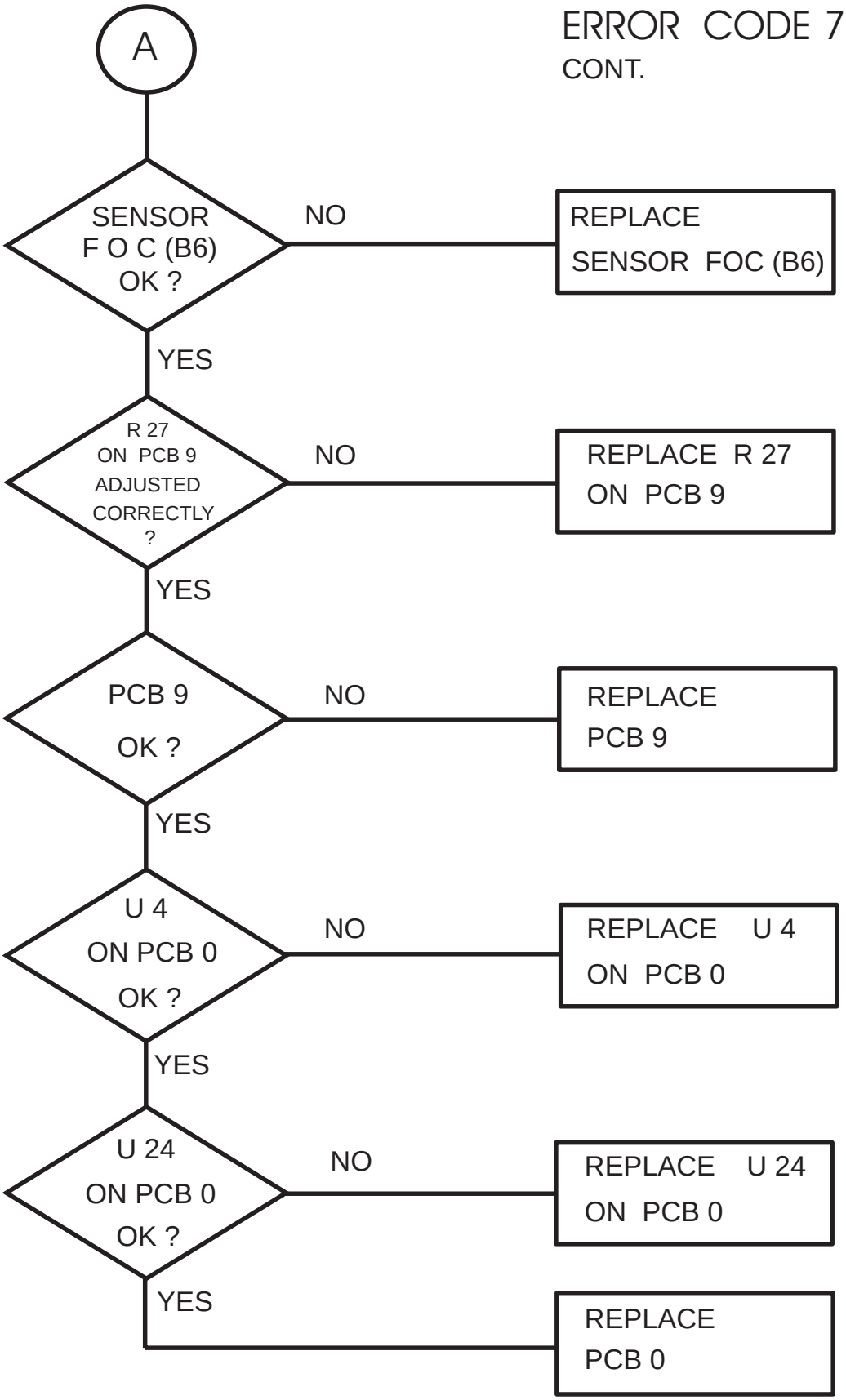


figure 5-38

ERROR CODE 72

(FILM JAM AT FRONT SENSOR OF TUNNEL)

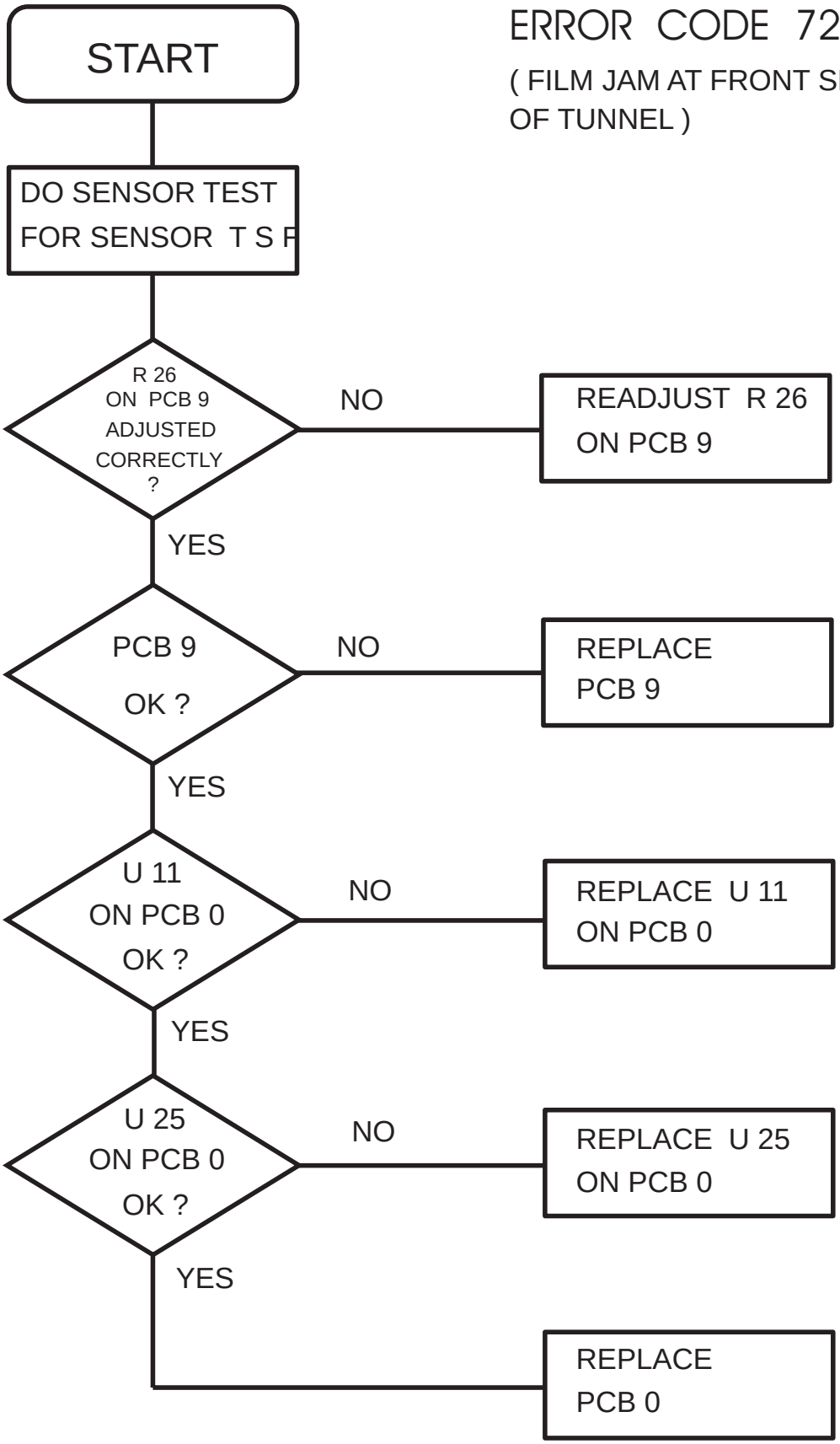


figure 5-39

ERROR CODE 73

(FILM JAM AT REAR SENSOR IN TUNNEL)

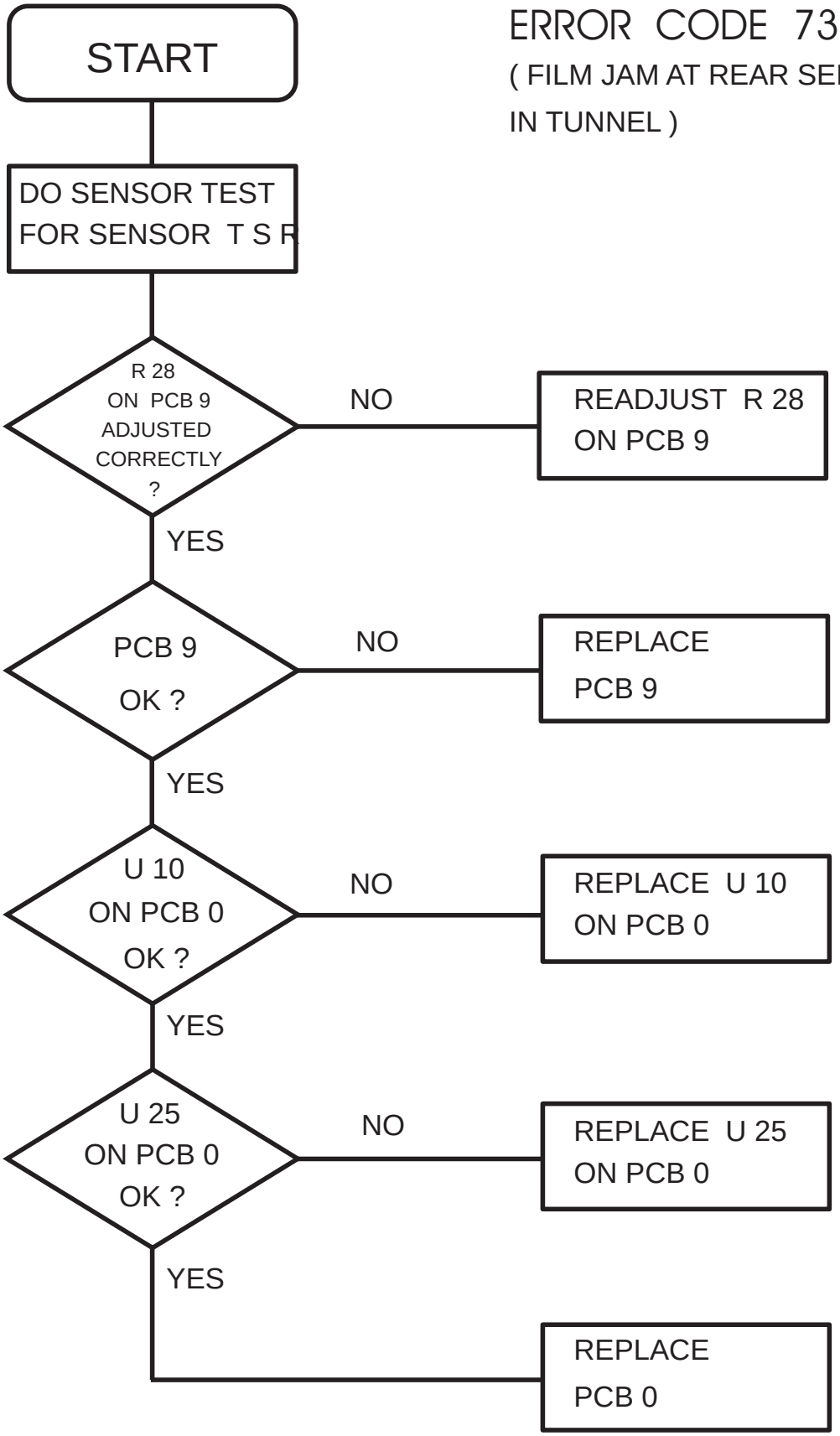


figure 5-40

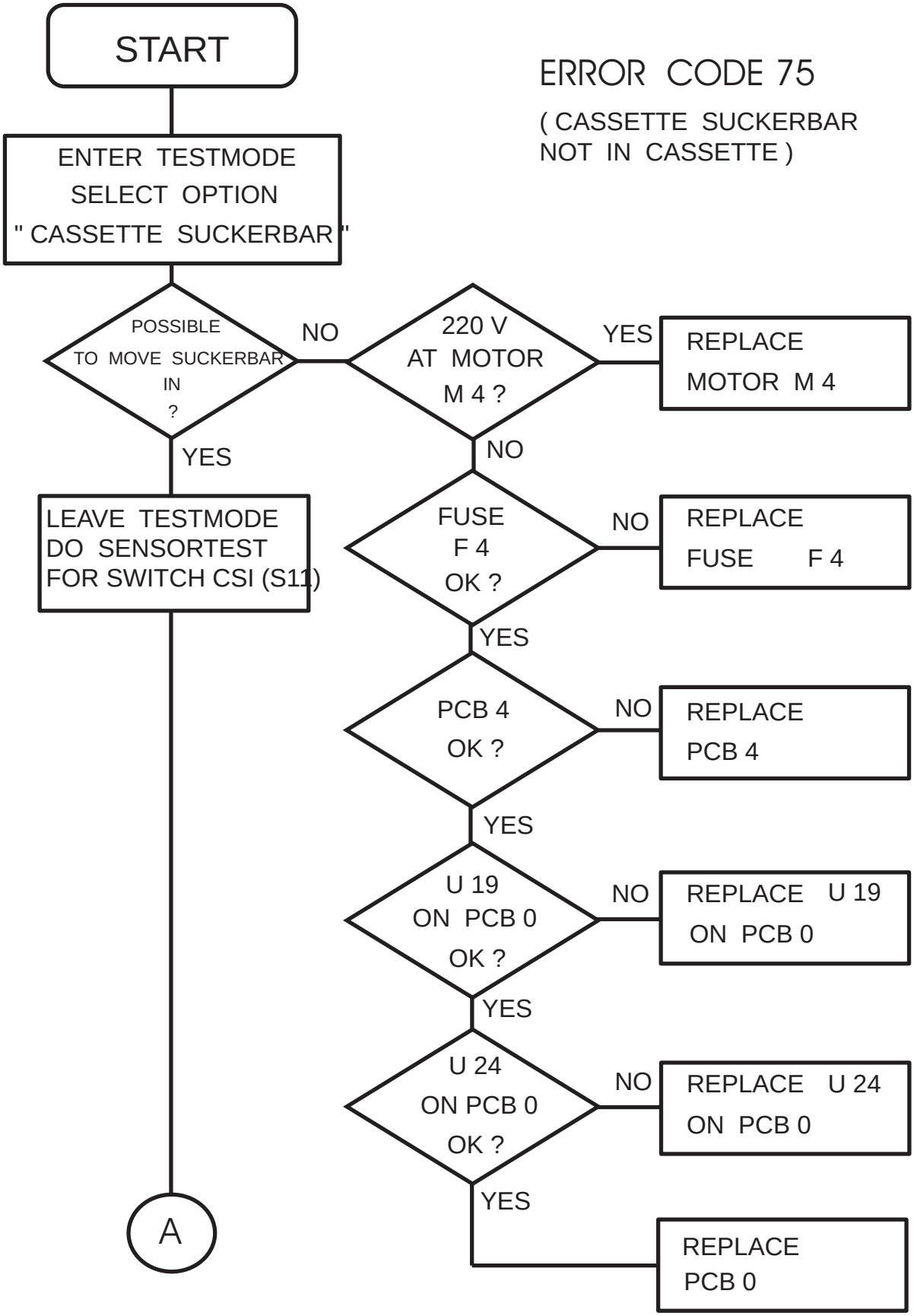

START
ERROR CODE 75
(CASSETTE SUCKERBAR NOT IN CASSETTE)
ENTER TESTMODE
SELECT OPTION
" CASSETTE SUCKERBAR "
POSSIBLE TO MOVE SUCKERBAR IN ?
NO
220 V AT MOTOR M 4 ?
YES
REPLACE MOTOR M 4
YES
NO
LEAVE TESTMODE
DO SENSORTEST
FOR SWITCH CSI (S11)
FUSE F 4 OK ?
NO
REPLACE FUSE F 4
YES
PCB 4 OK ?
NO
REPLACE PCB 4
YES
U 19 ON PCB 0 OK ?
NO
REPLACE U 19 ON PCB 0
YES
U 24 ON PCB 0 OK ?
NO
REPLACE U 24 ON PCB 0
YES
REPLACE PCB 0
A

figure 5-41

ERROR CODE 75

CONT.

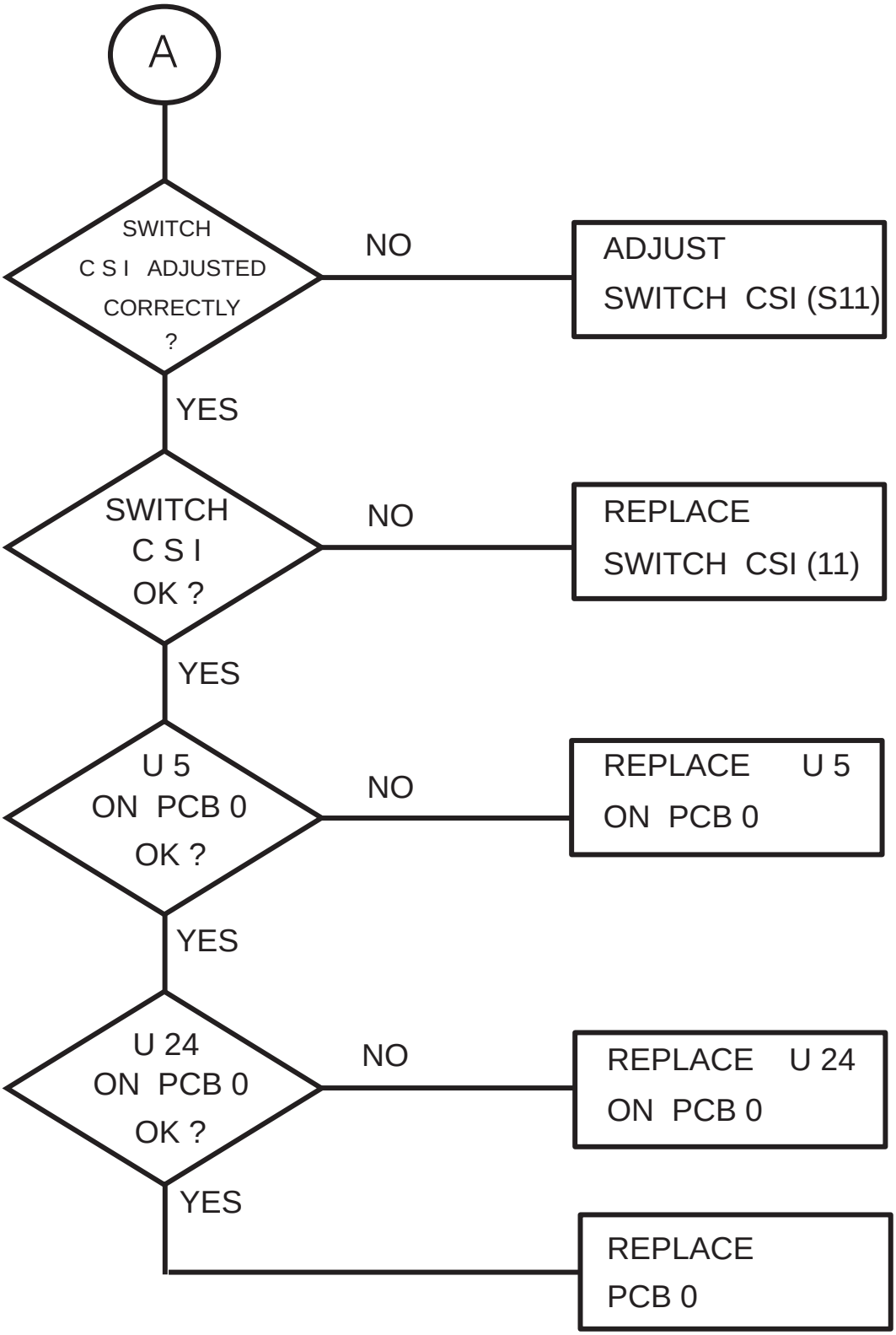


figure 5-42

ERROR CODE 76

UNLOAD ENDSWITCH
TOO EARLY

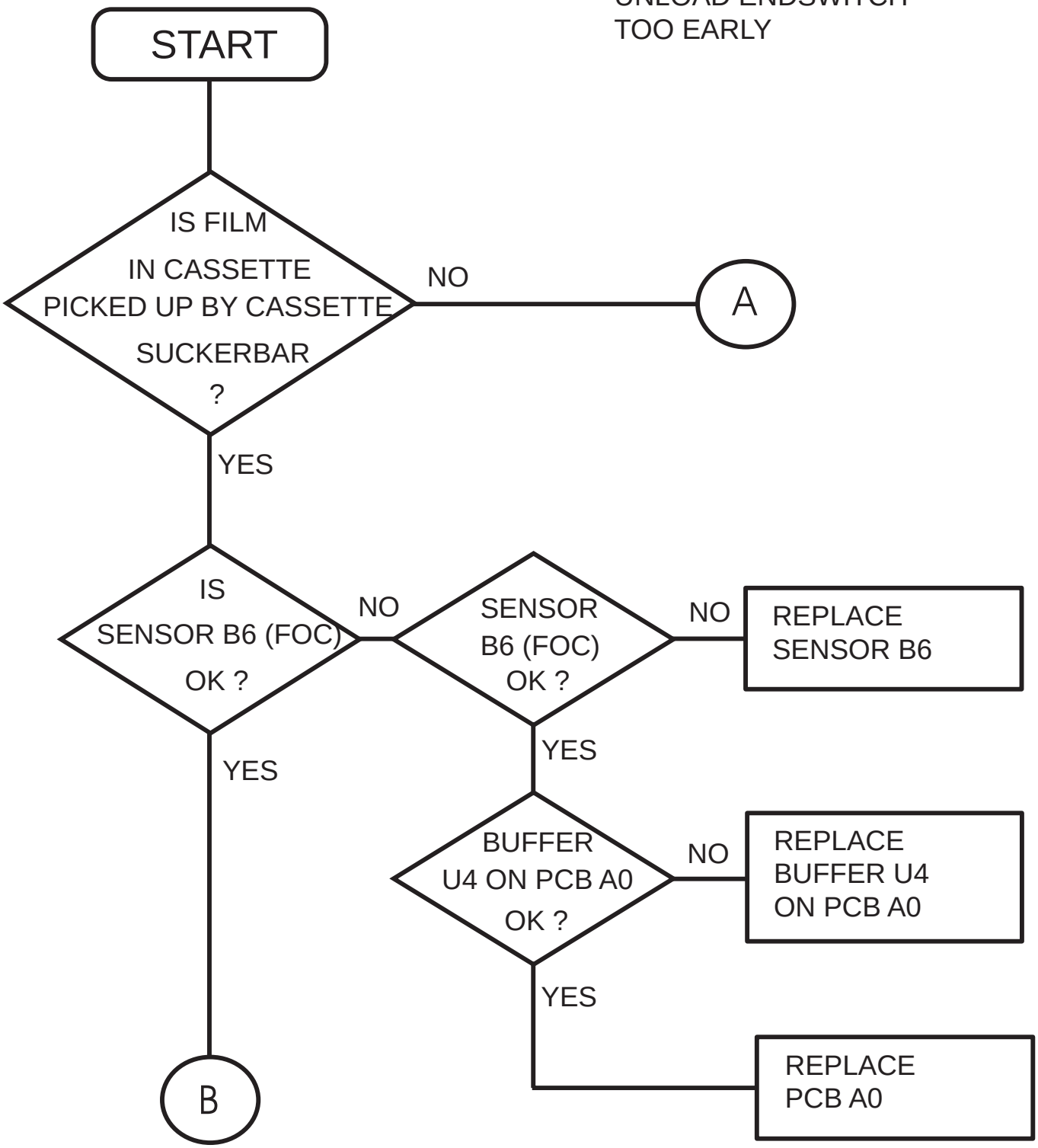


figure 5-43

ERROR CODE 76
CONT.

UNLOAD ENDSWITCH
TOO EARLY

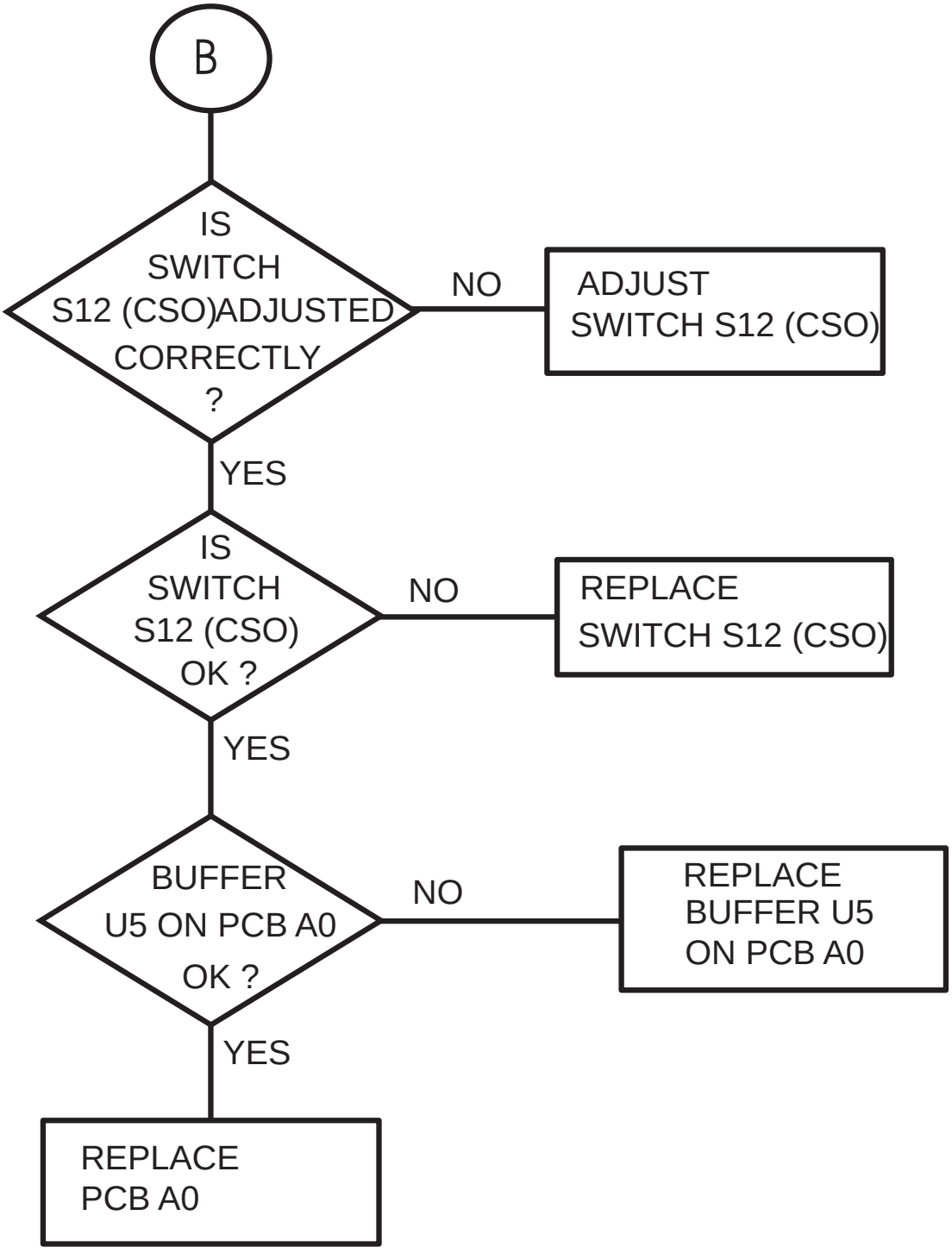


figure 5-44

ERROR CODE 76
CONT.
UNLOAD ENDSWITCH
TOO EARLY

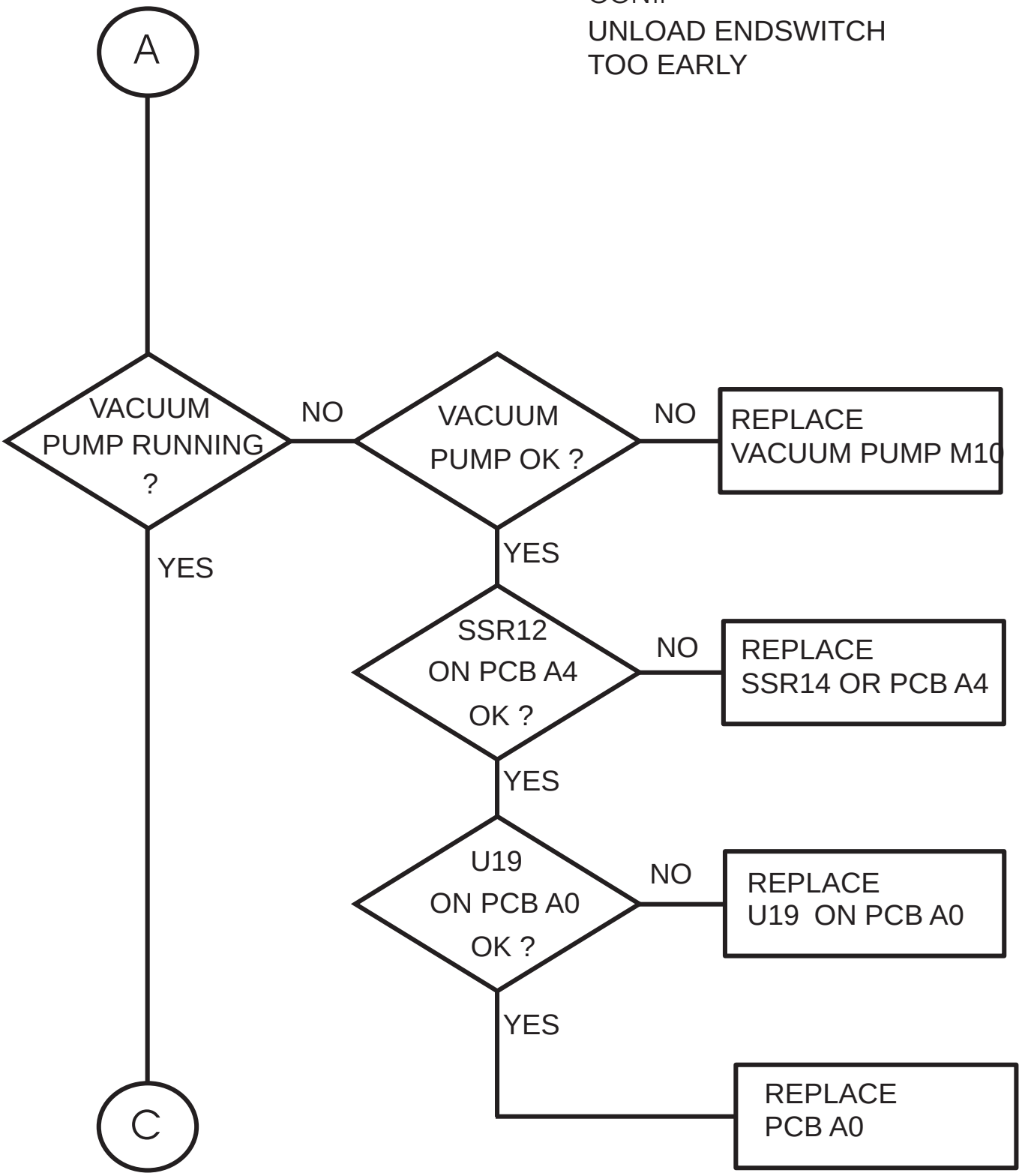


figure 5-45

ERROR CODE 76
CONT.
UNLOAD ENDSWITCH
TOO EARLY

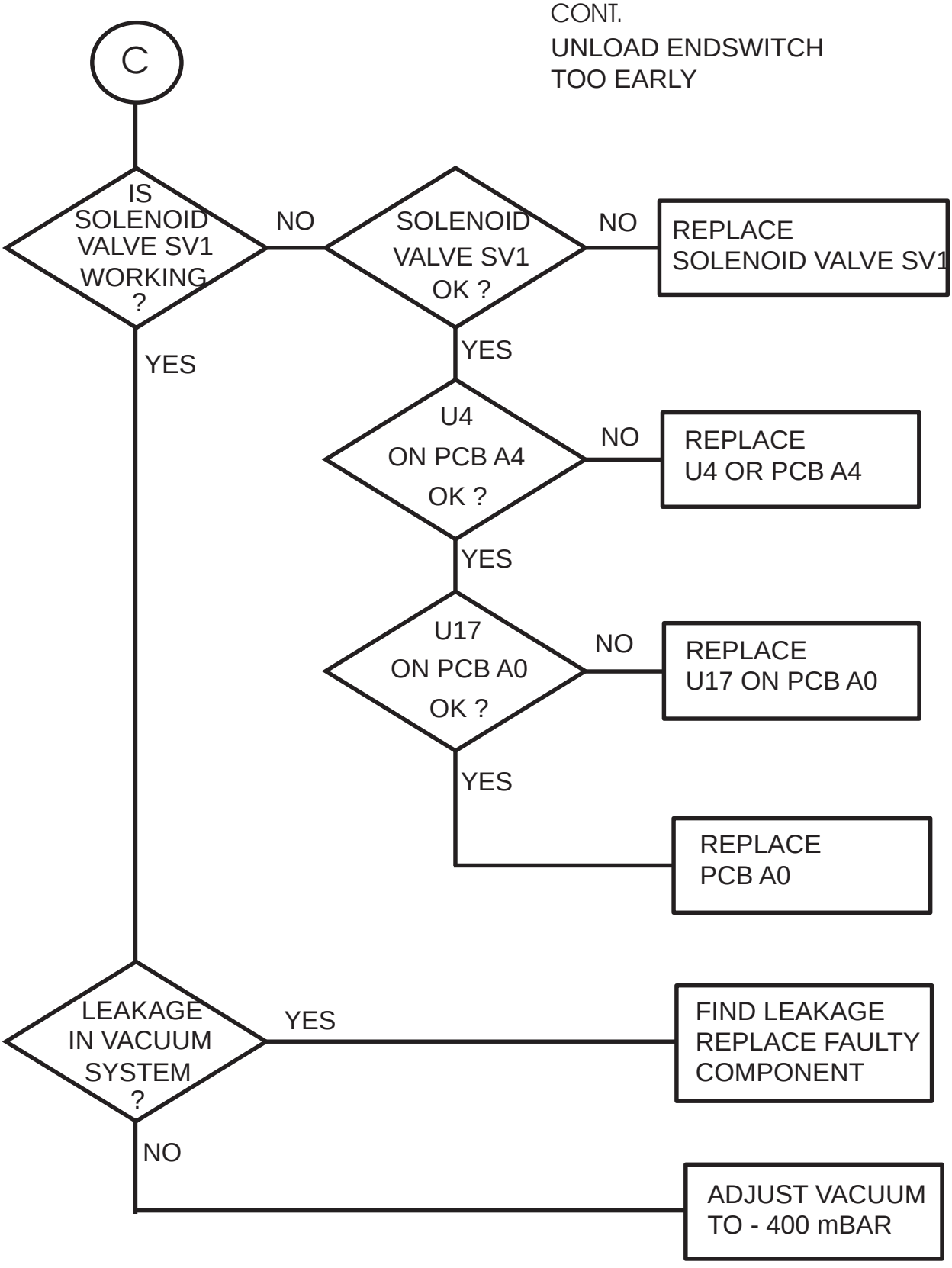


figure 5-46

ERROR CODE 77
(3 UNSUCCESSFUL ATTEMPTS)

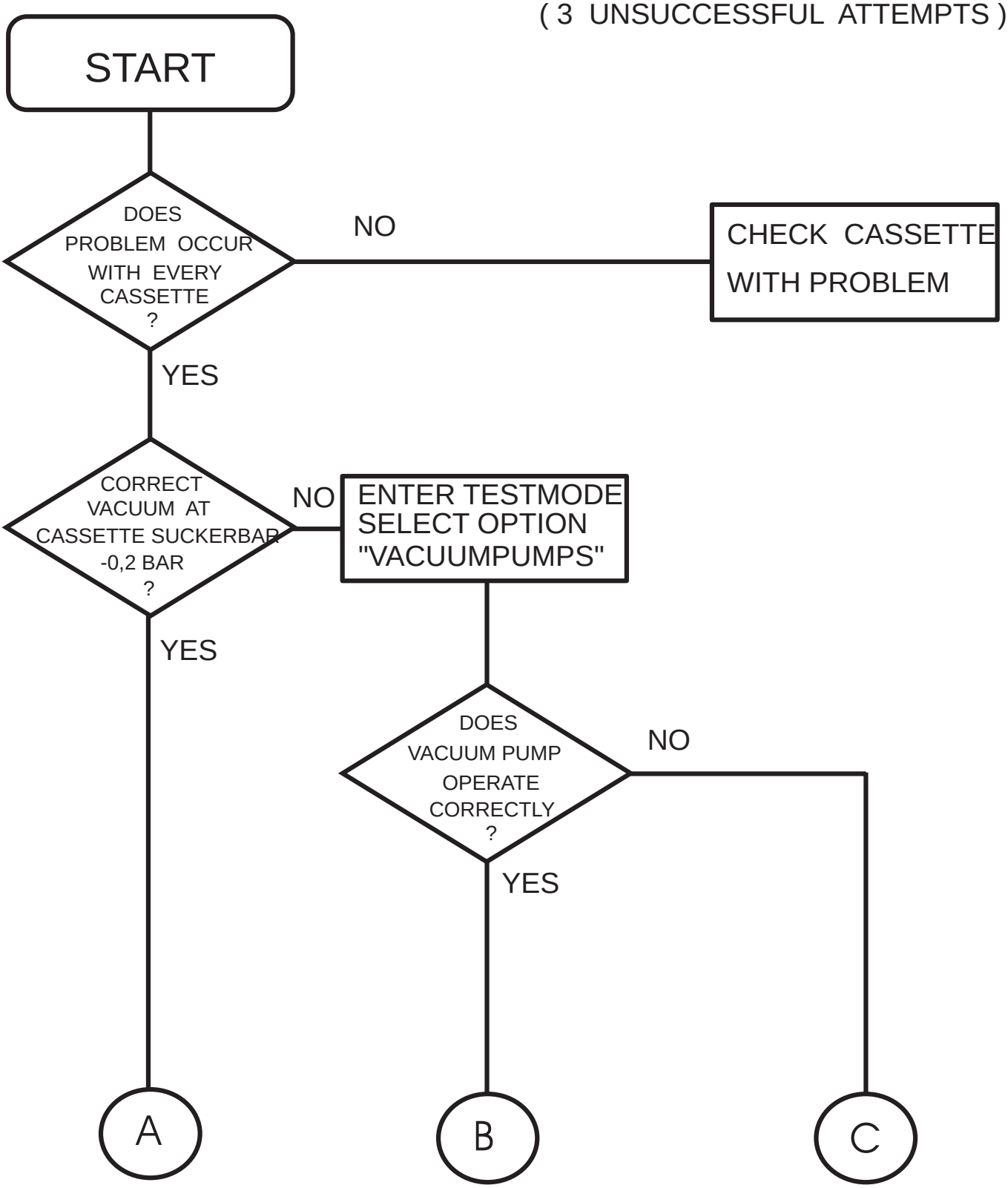


figure 5-47

ERROR CODE 77
CONT.

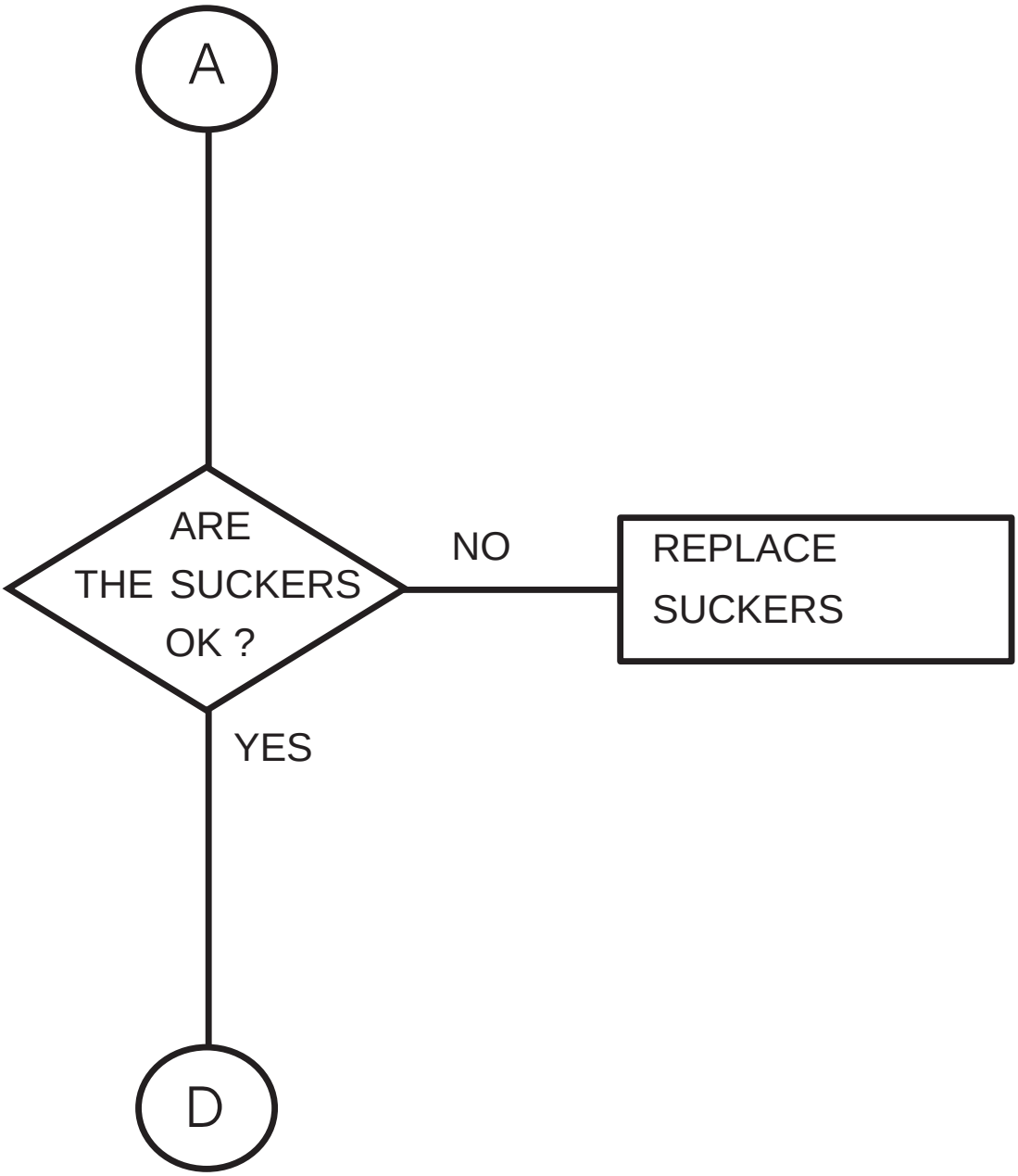


figure 5-48

ERROR CODE 77
CONT.

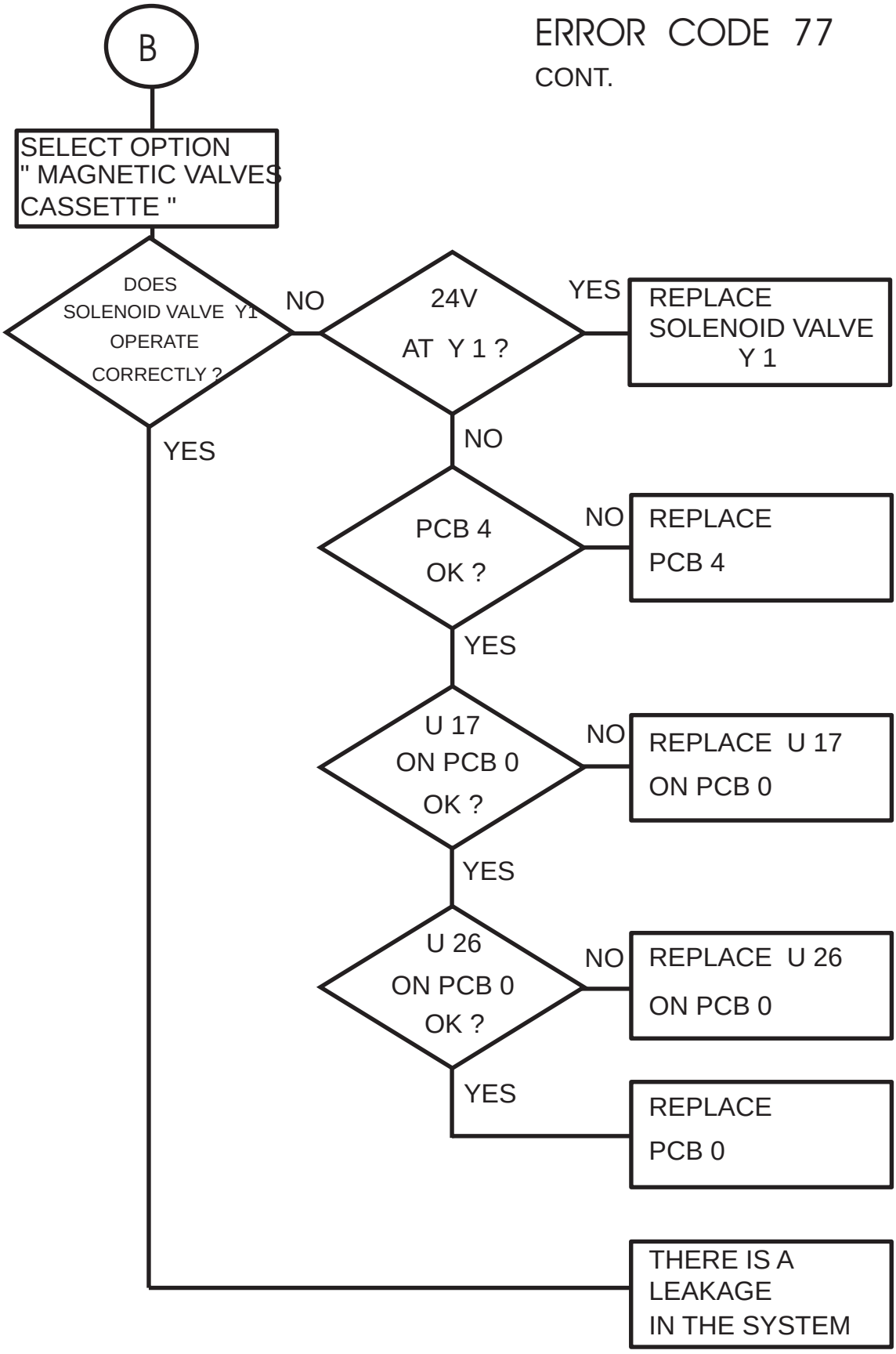


figure 5-49

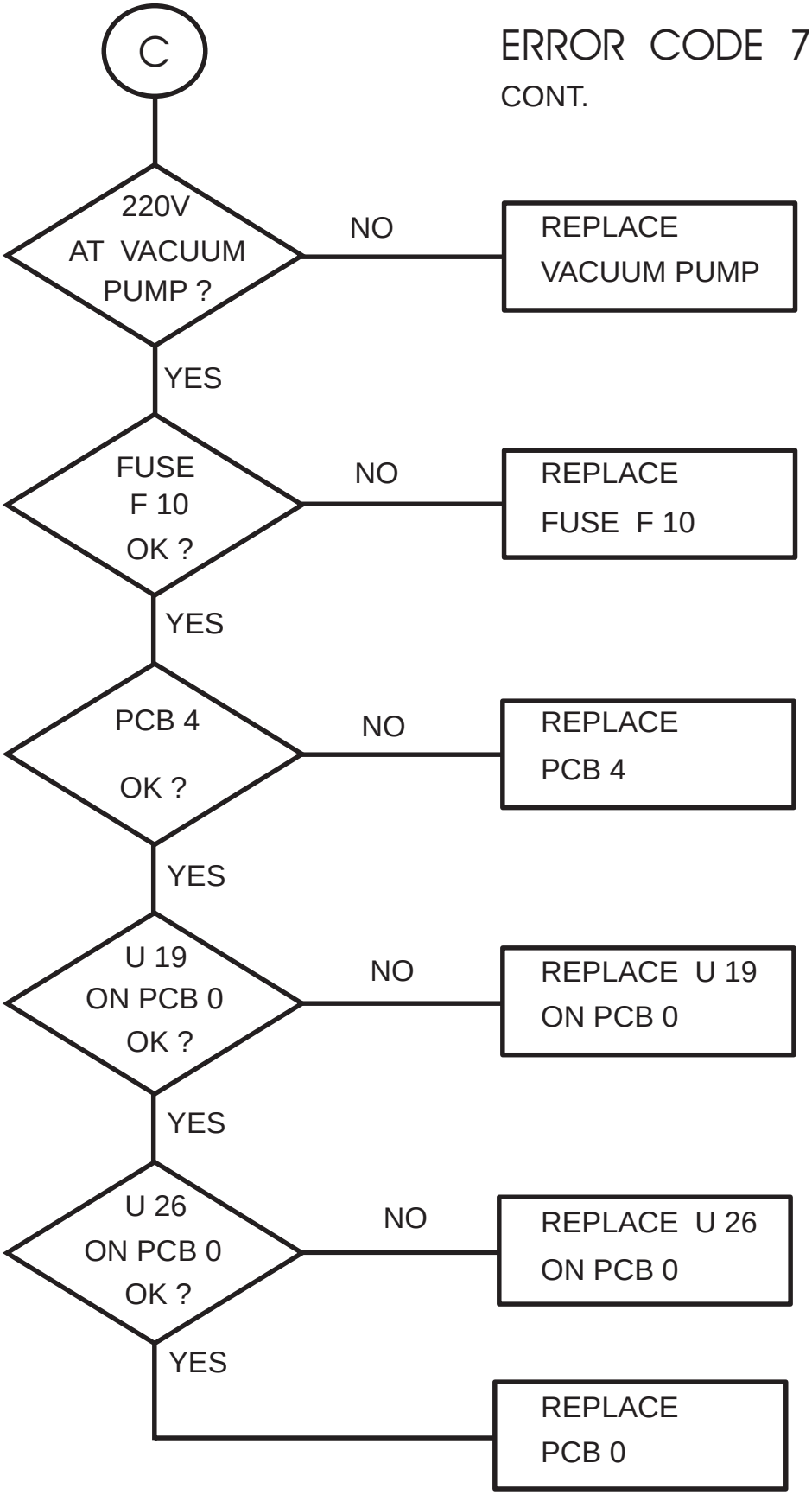

C
ERROR CODE 77
CONT.
220V AT VACUUM PUMP ?
NO
REPLACE VACUUM PUMP
YES
FUSE F 10 OK ?
NO
REPLACE FUSE F 10
YES
PCB 4 OK ?
NO
REPLACE PCB 4
YES
U 19 ON PCB 0 OK ?
NO
REPLACE U 19 ON PCB 0
YES
U 26 ON PCB 0 OK ?
NO
REPLACE U 26 ON PCB 0
YES
REPLACE PCB 0

figure 5-50

ERROR CODE 77

CONT.

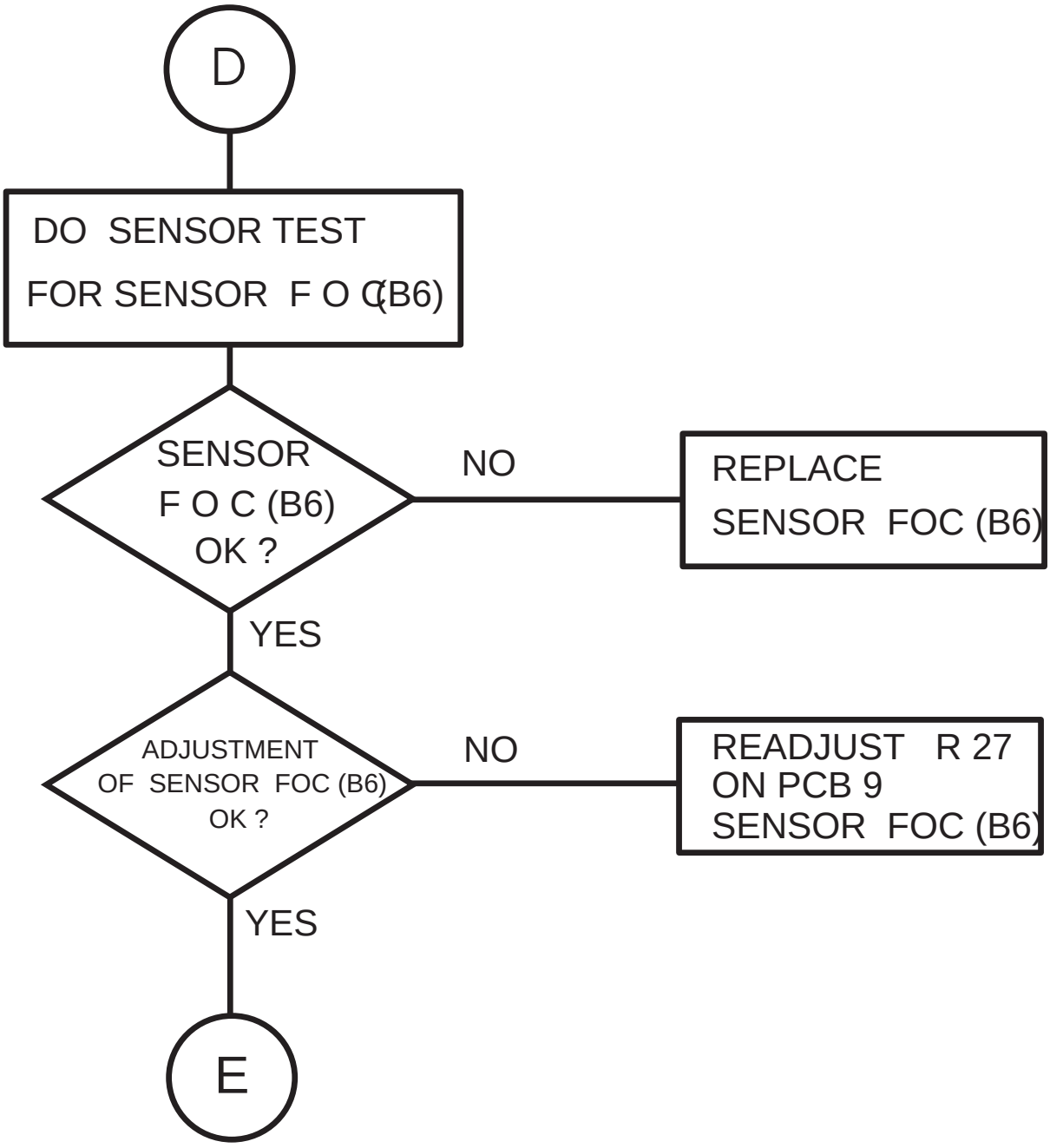


figure 5-51

ERROR CODE 77

CONT.

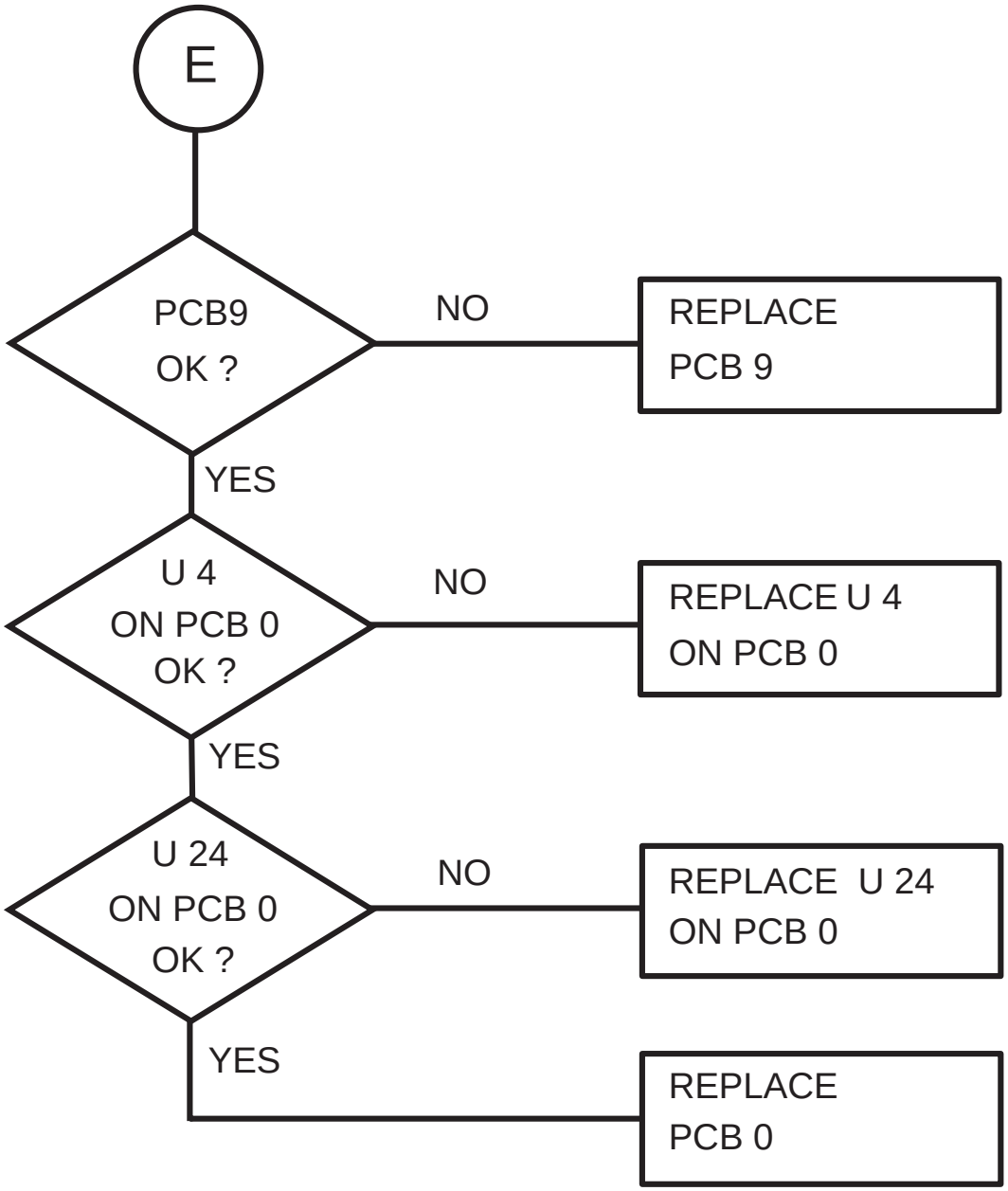


figure 5-52

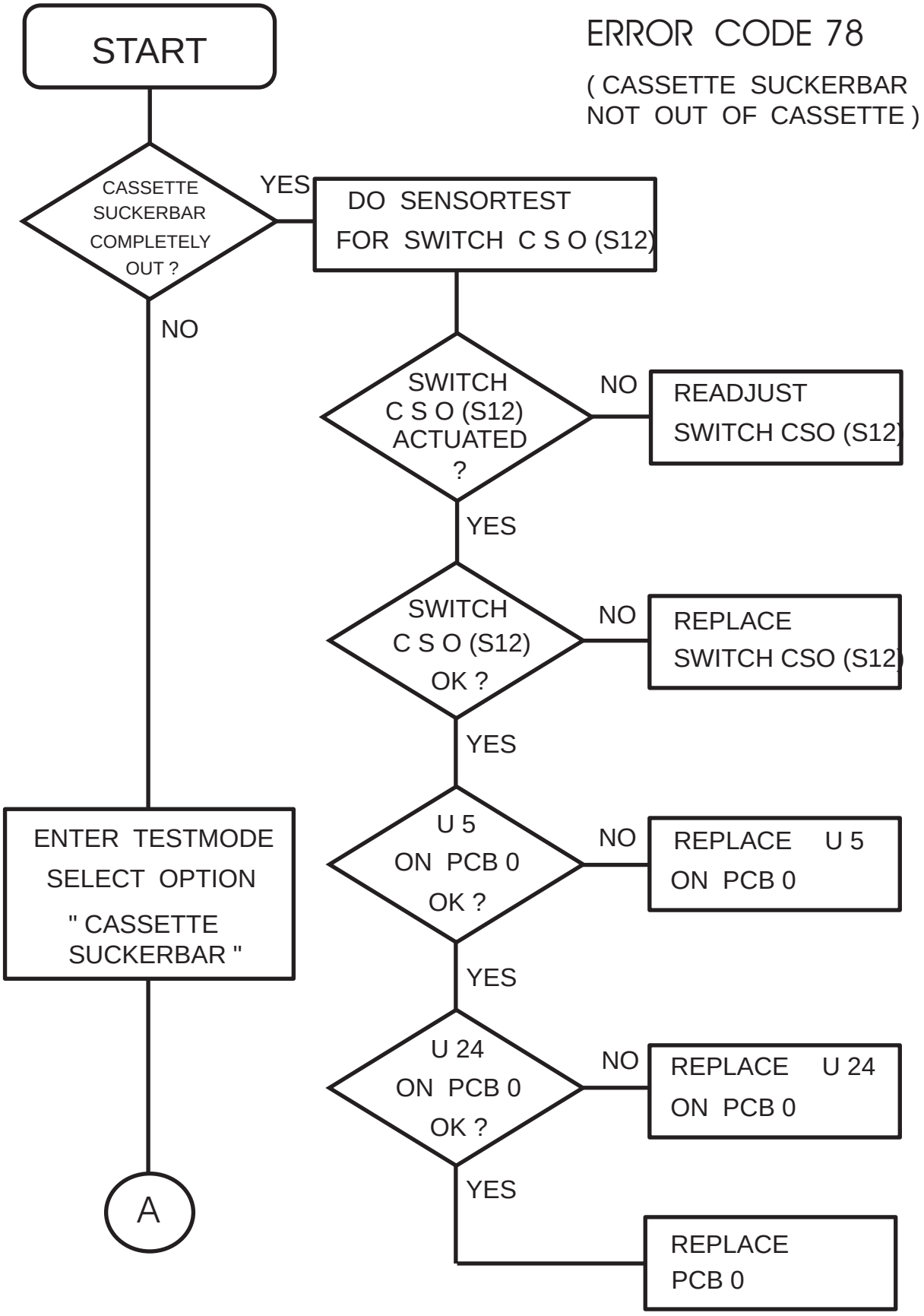

START
ERROR CODE 78
(CASSETTE SUCKERBAR NOT OUT OF CASSETTE)
CASSETTE SUCKERBAR COMPLETELY OUT ?
YES
DO SENSORTEST FOR SWITCH C S O (S12)
NO
SWITCH C S O (S12) ACTUATED ?
NO
READJUST SWITCH CSO (S12)
YES
SWITCH C S O (S12) OK ?
NO
REPLACE SWITCH CSO (S12)
YES
U 5 ON PCB 0 OK ?
NO
REPLACE U 5 ON PCB 0
YES
U 24 ON PCB 0 OK ?
NO
REPLACE U 24 ON PCB 0
YES
REPLACE PCB 0
ENTER TESTMODE SELECT OPTION " CASSETTE SUCKERBAR "
A

figure 5-53

TEST OF OPTO COUPLERS U1, U2 AND DARLINGTON AMPLIFIERS U3 AND U4

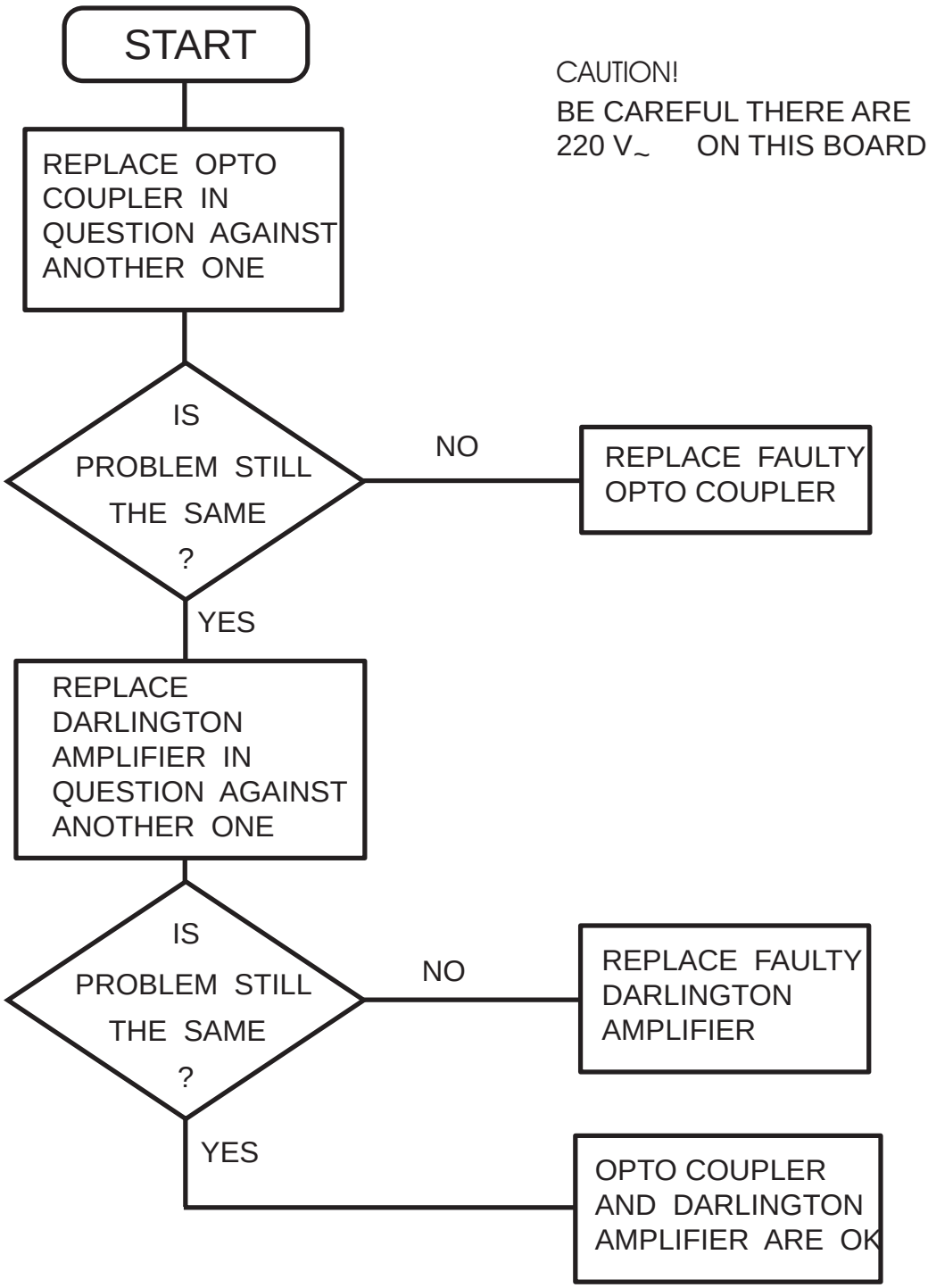


figure 5-54

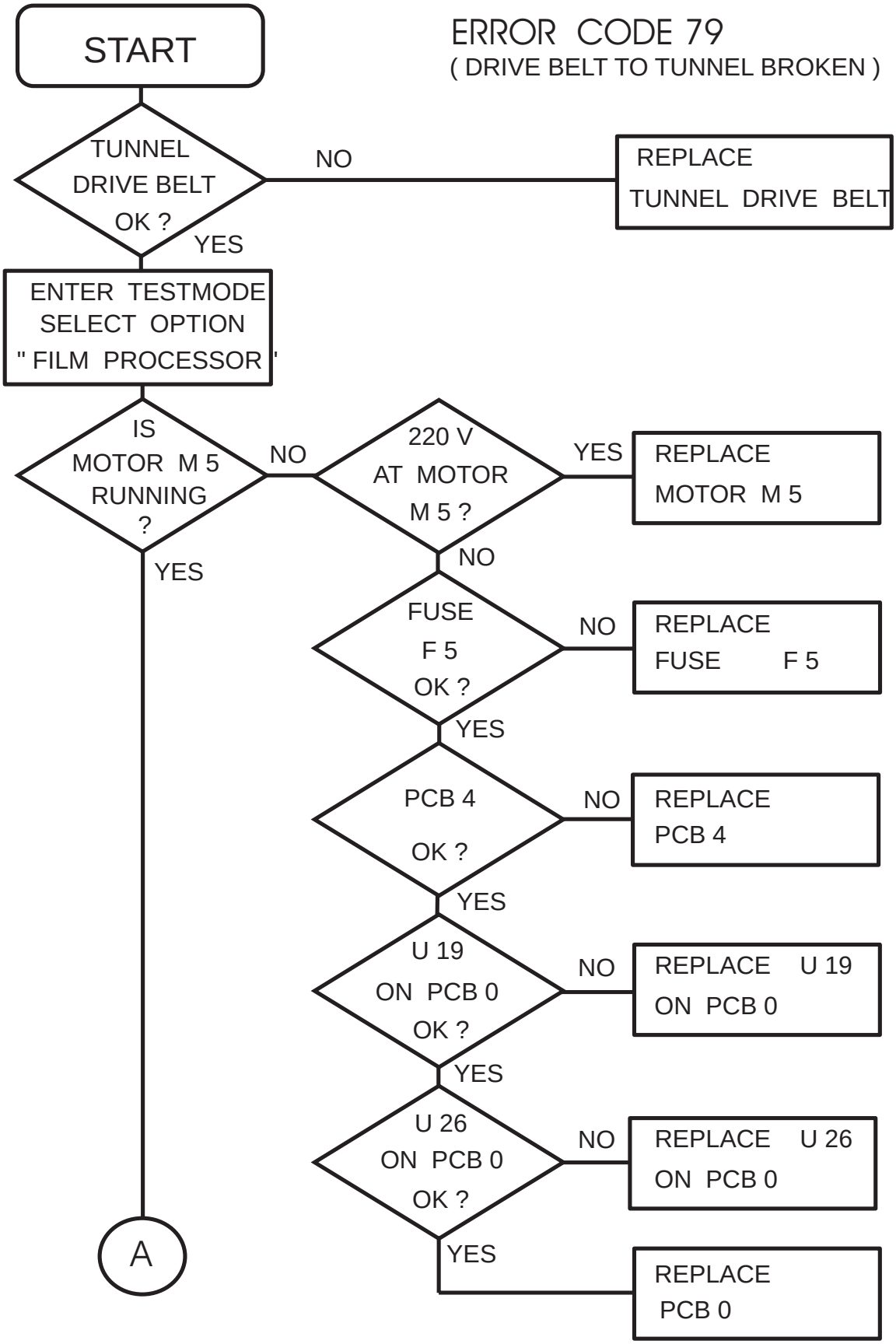

START
ERROR CODE 79
(DRIVE BELT TO TUNNEL BROKEN)
TUNNEL DRIVE BELT OK ?
NO
REPLACE TUNNEL DRIVE BELT
YES
ENTER TESTMODE SELECT OPTION " FILM PROCESSOR "
IS MOTOR M 5 RUNNING ?
NO
220 V AT MOTOR M 5 ?
YES
REPLACE MOTOR M 5
YES
NO
FUSE F 5 OK ?
NO
REPLACE FUSE F 5
YES
PCB 4 OK ?
NO
REPLACE PCB 4
YES
U 19 ON PCB 0 OK ?
NO
REPLACE U 19 ON PCB 0
YES
U 26 ON PCB 0 OK ?
NO
REPLACE U 26 ON PCB 0
YES
REPLACE PCB 0
A

figure 5-55

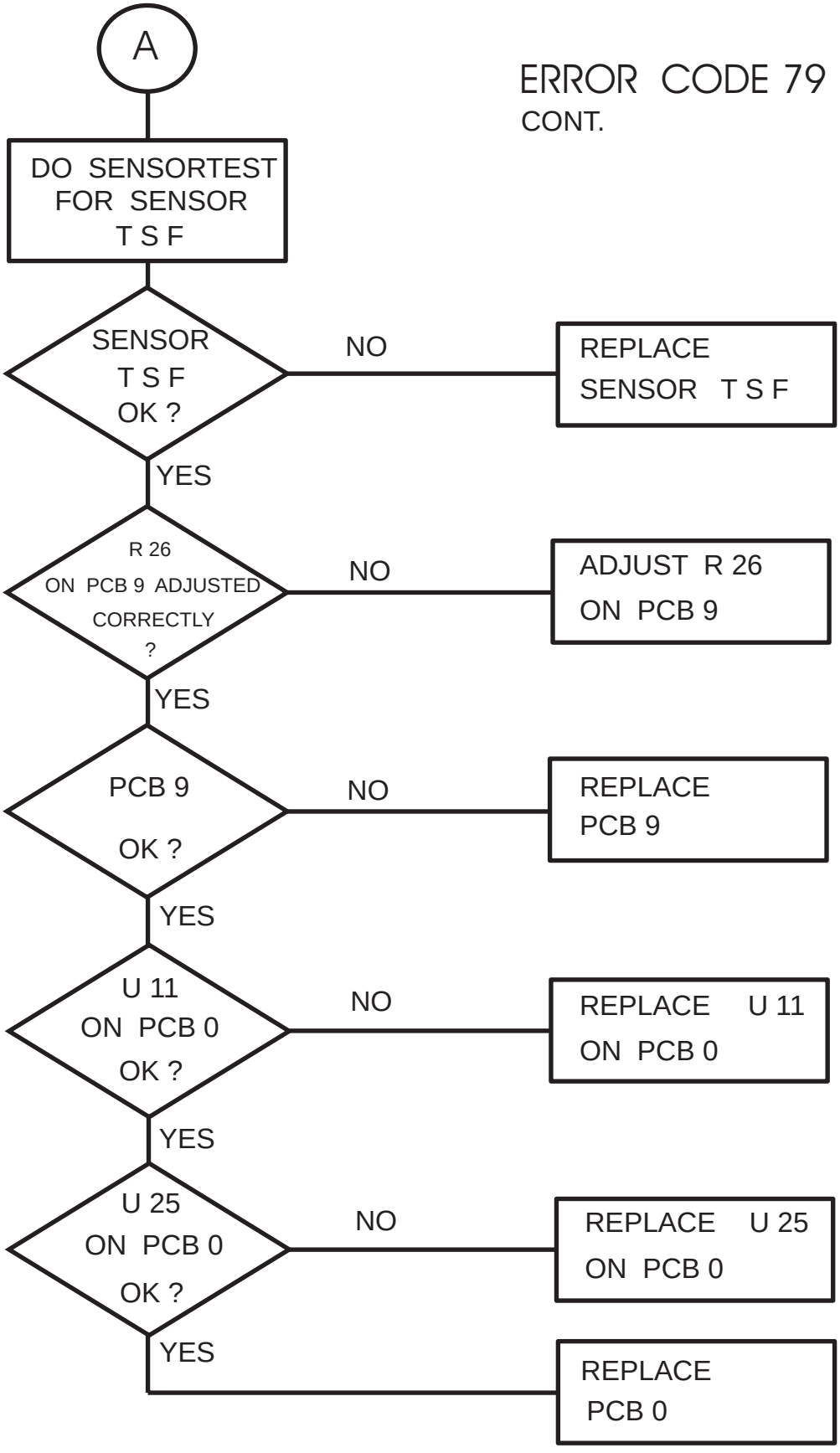

A
ERROR CODE 79
CONT.
DO SENSORTEST FOR SENSOR T S F
SENSOR T S F OK ?
NO
REPLACE SENSOR T S F
YES
R 26 ON PCB 9 ADJUSTED CORRECTLY ?
NO
ADJUST R 26 ON PCB 9
YES
PCB 9 OK ?
NO
REPLACE PCB 9
YES
U 11 ON PCB 0 OK ?
NO
REPLACE U 11 ON PCB 0
YES
U 25 ON PCB 0 OK ?
NO
REPLACE U 25 ON PCB 0
YES
REPLACE PCB 0

figure 5-56

ERROR CODE 7 A

(CASSETTE SUCKERBAR NOT OUT
OF CASSETTE AFTER THIRD ATTEMPT)

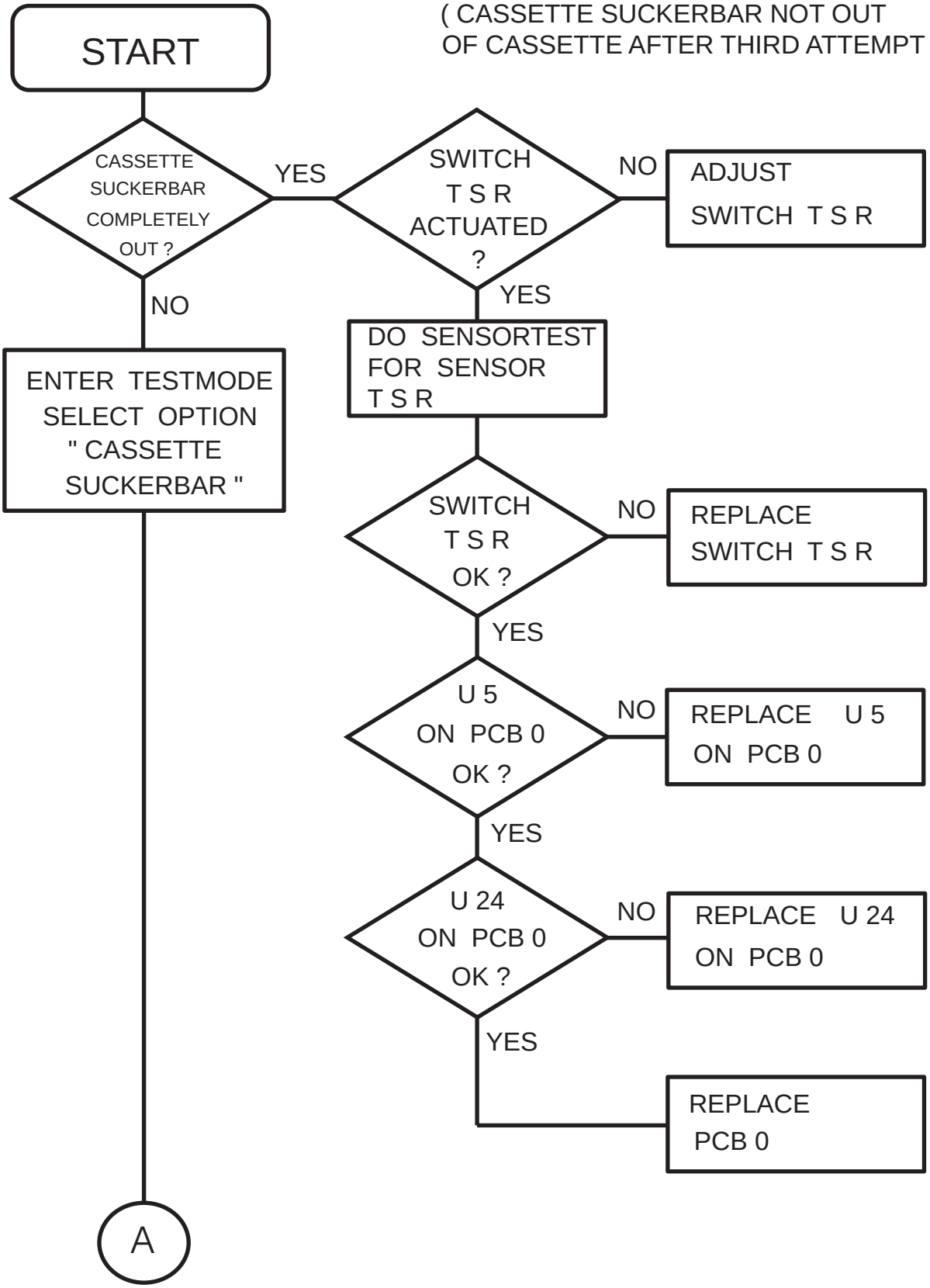


figure 5-57

ERROR CODE 7A

CONT.

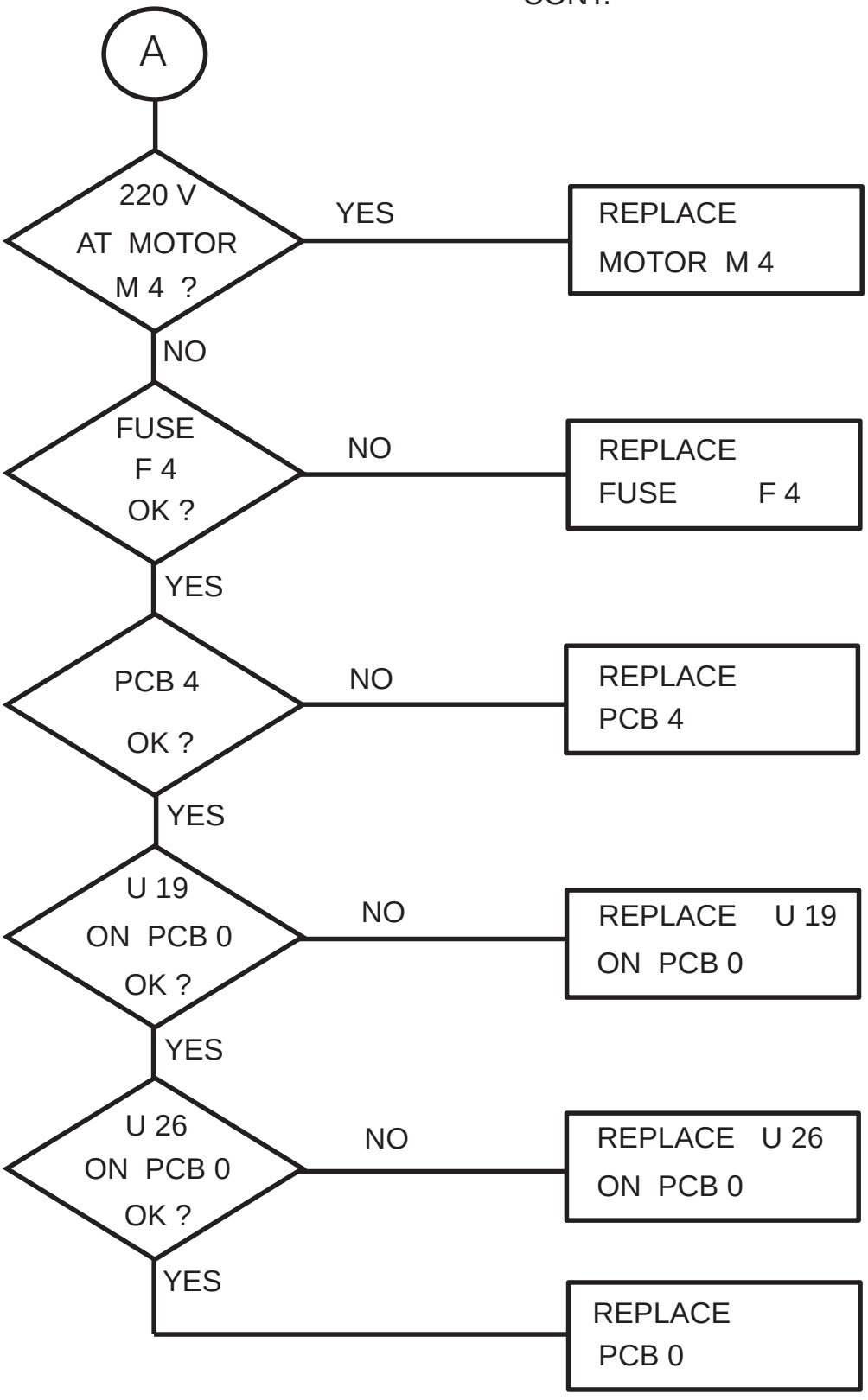


figure 5-58

ERROR CODE 7B

(TRAILING EDGE OF FILM NOT DETECTED)

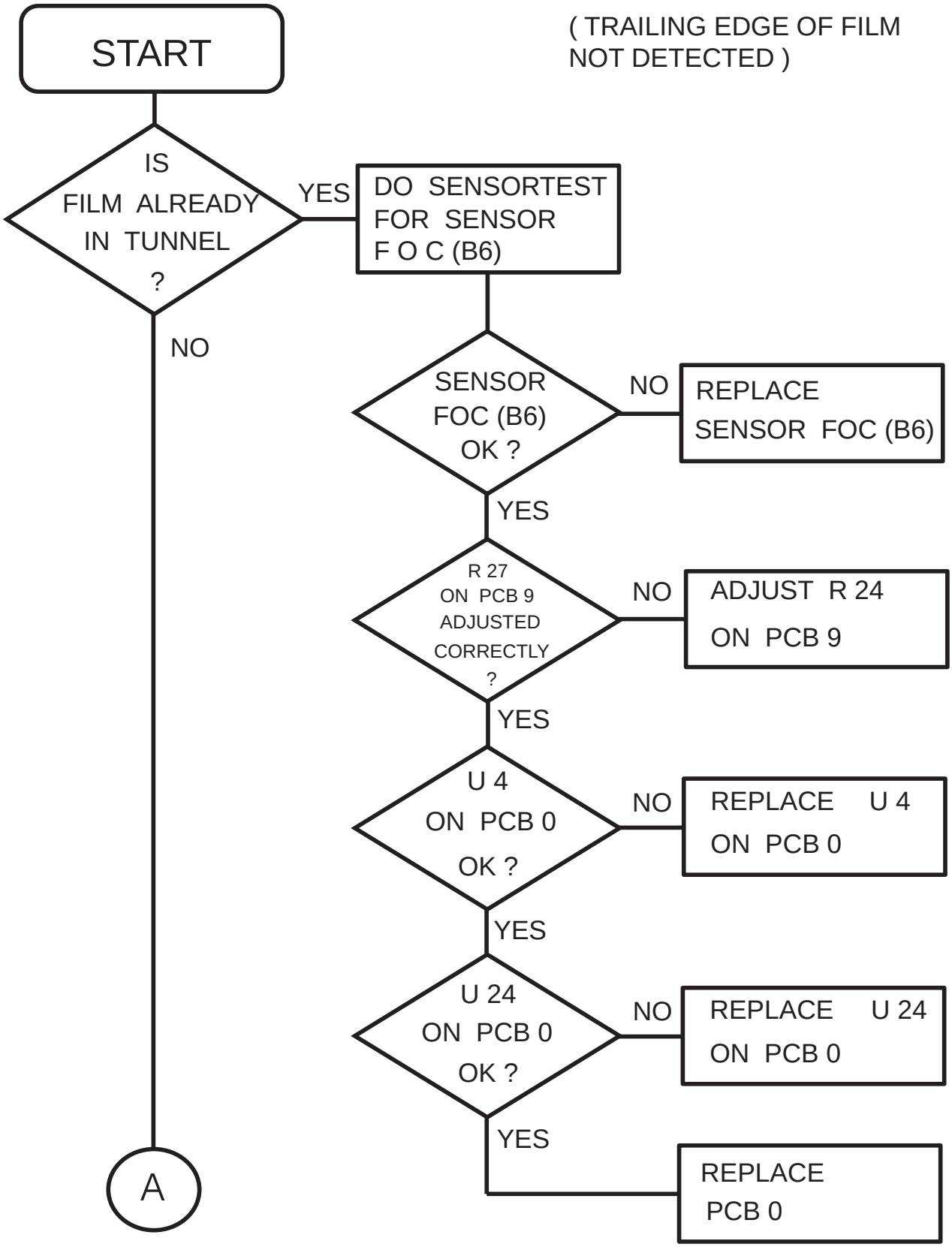


figure 5-59

ERROR CODE 7B

CONT.

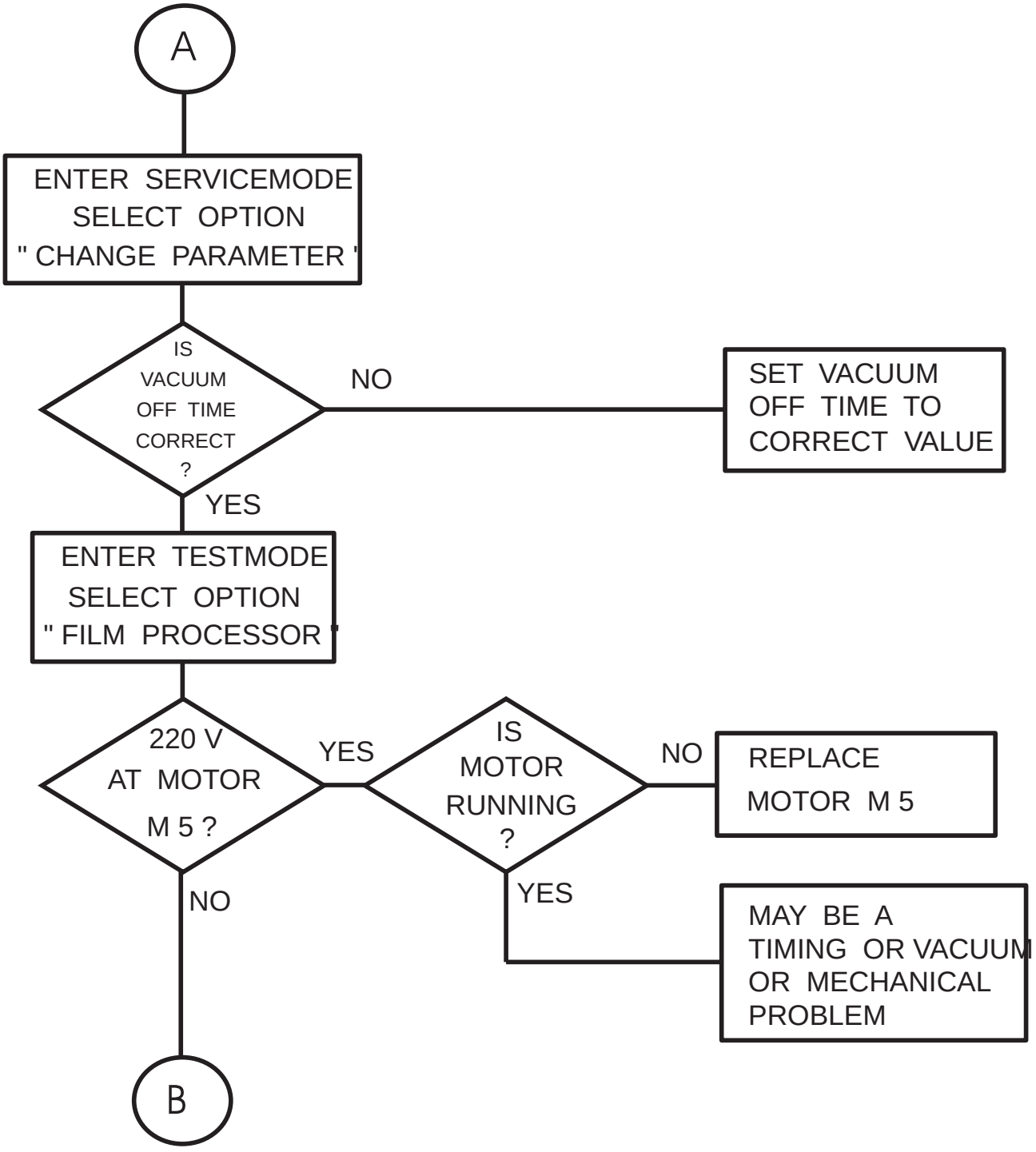


figure 5-60

ERROR CODE 7B
CONT.

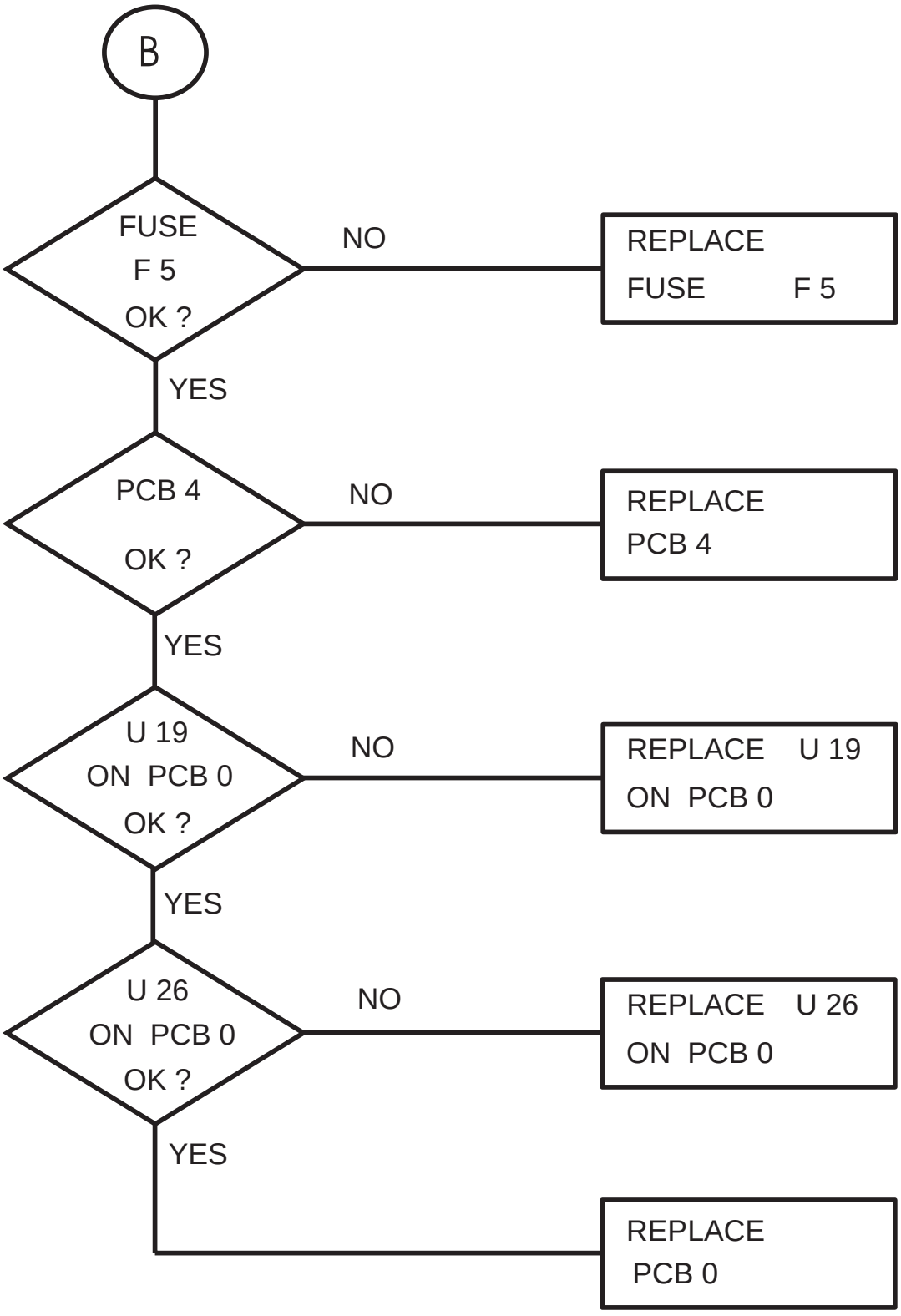


figure 5-61

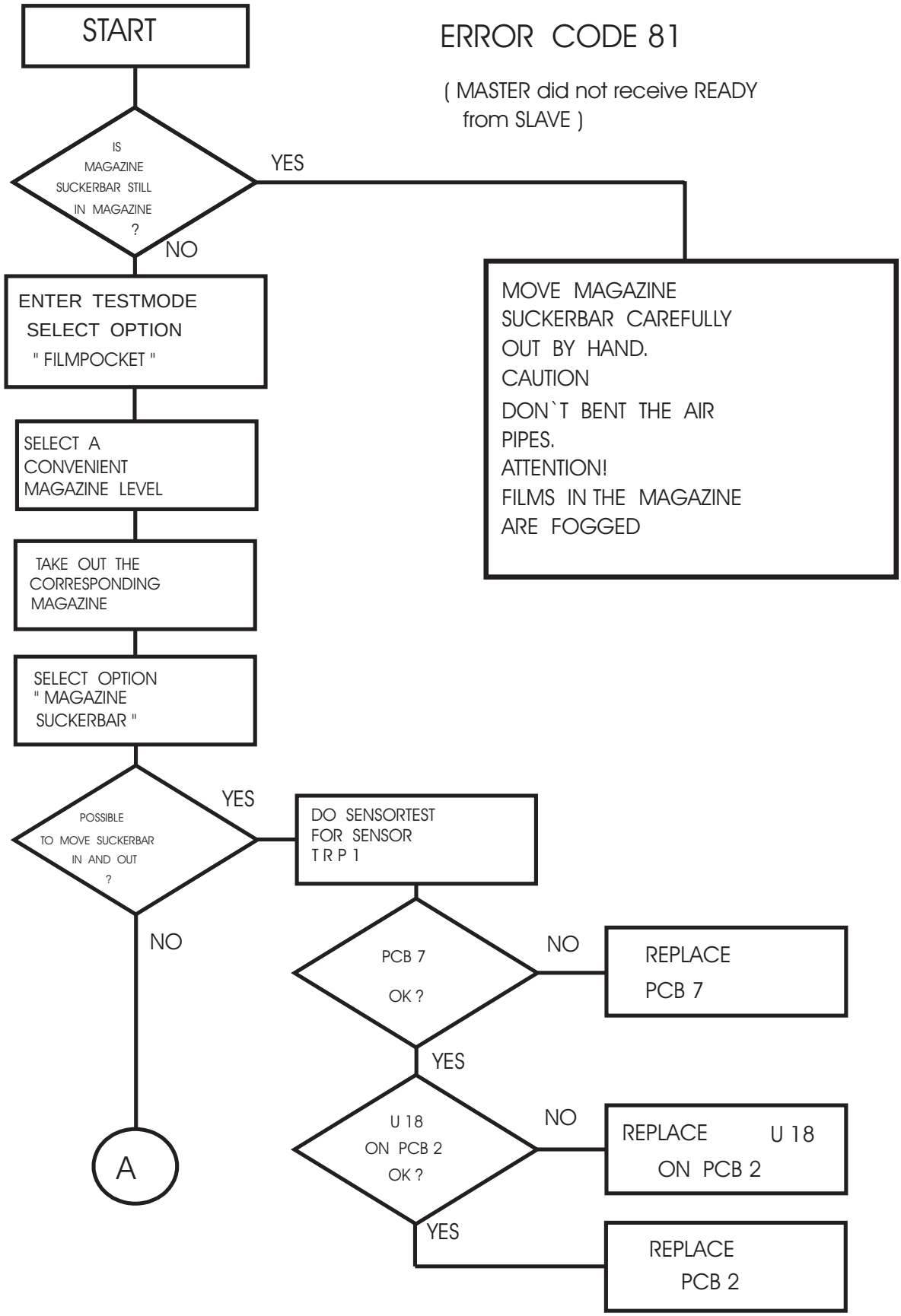

START
ERROR CODE 81
(MASTER did not receive READY from SLAVE)
IS MAGAZINE SUCKERBAR STILL IN MAGAZINE ?
YES
NO
MOVE MAGAZINE SUCKERBAR CAREFULLY OUT BY HAND.
CAUTION
DON`T BENT THE AIR PIPES.
ATTENTION!
FILMS IN THE MAGAZINE ARE FOGGED
ENTER TESTMODE
SELECT OPTION
" FILMPOCKET "
SELECT A CONVENIENT MAGAZINE LEVEL
TAKE OUT THE CORRESPONDING MAGAZINE
SELECT OPTION " MAGAZINE SUCKERBAR "
POSSIBLE TO MOVE SUCKERBAR IN AND OUT ?
YES
NO
DO SENSORTEST FOR SENSOR T R P 1
PCB 7 OK ?
NO
REPLACE PCB 7
YES
U 18 ON PCB 2 OK ?
NO
REPLACE U 18 ON PCB 2
YES
REPLACE PCB 2
A

figure 5-62

ERROR CODE 81

CONT.

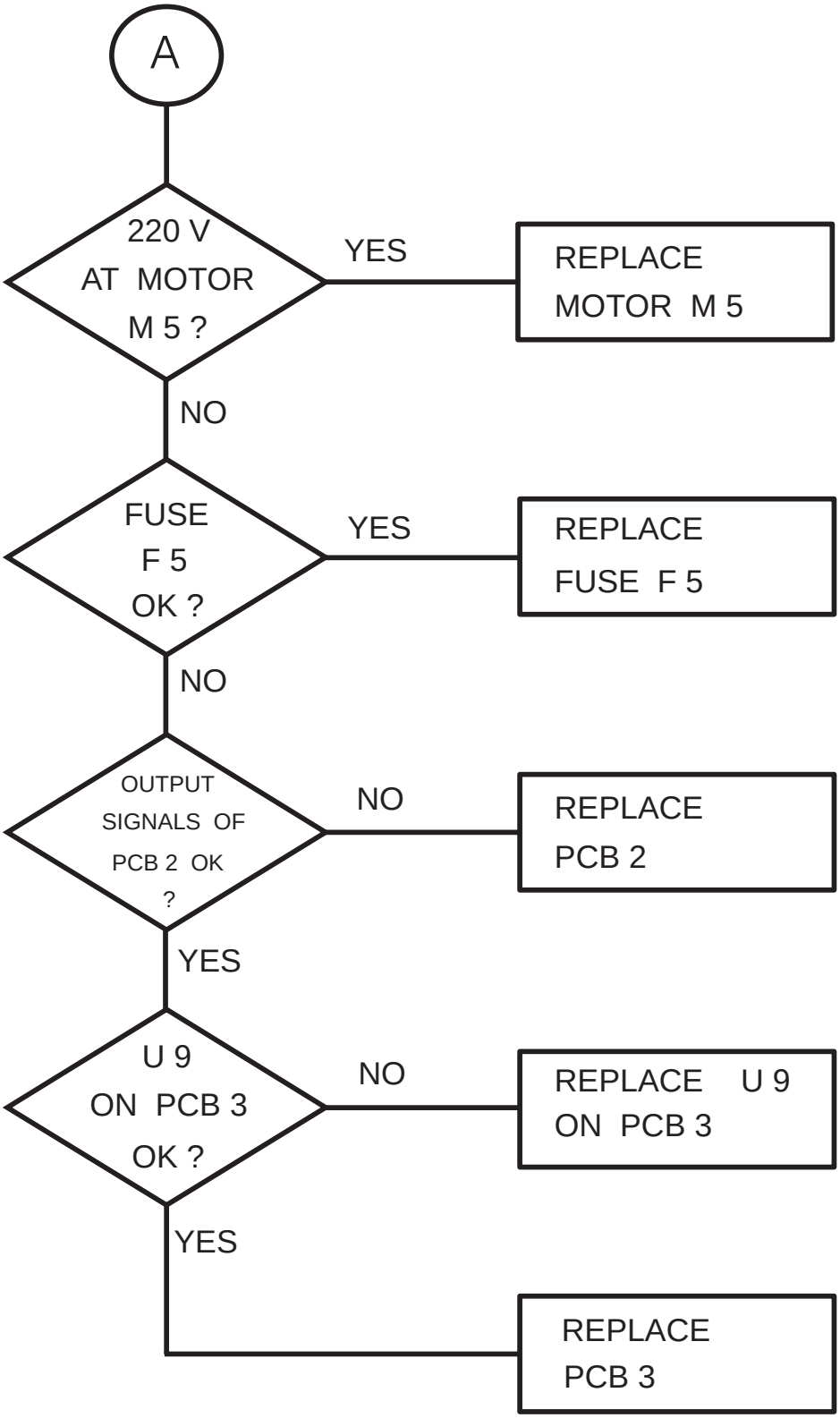


figure 5-63

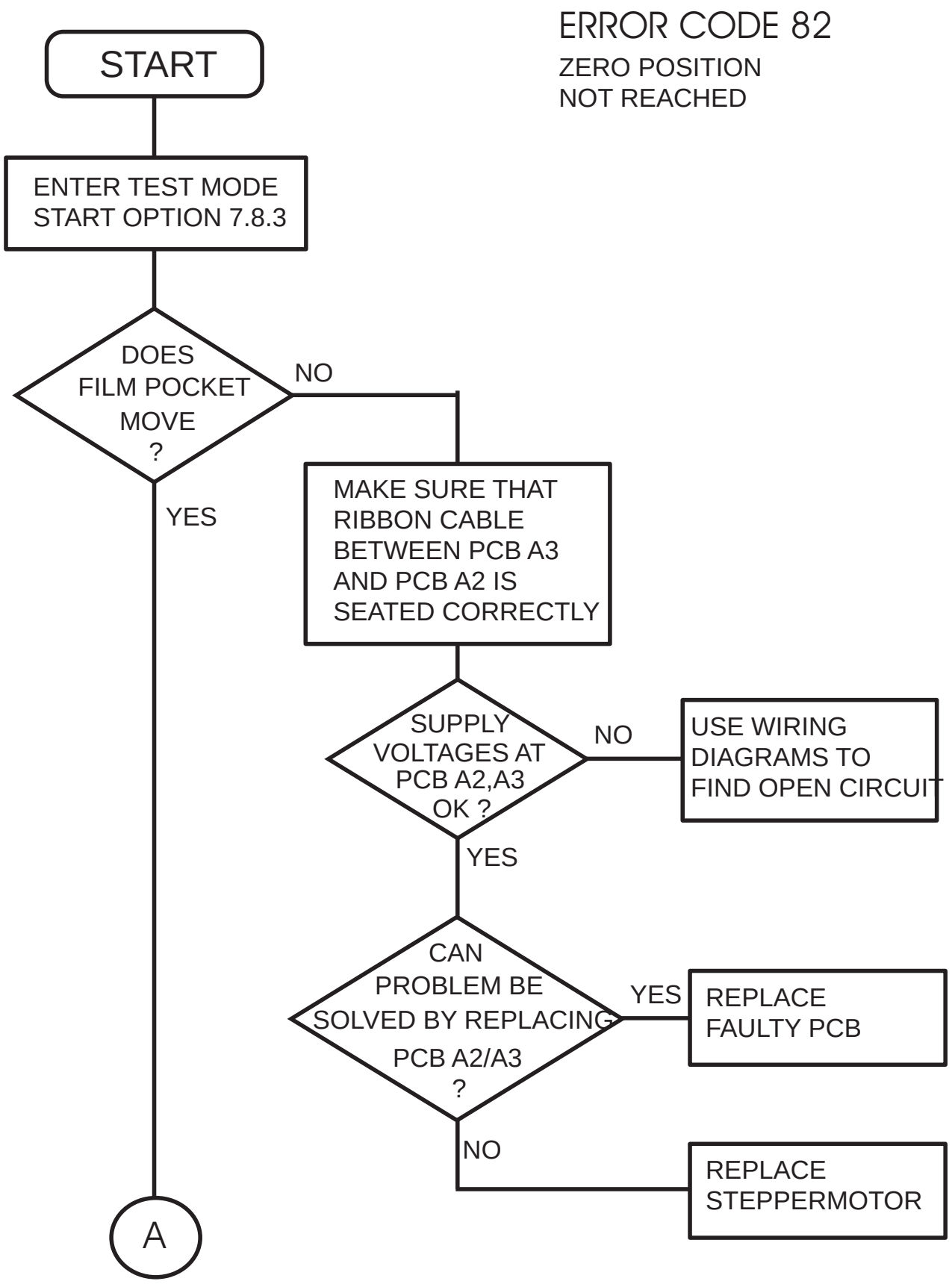

ERROR CODE 82
ZERO POSITION
NOT REACHED
START
ENTER TEST MODE
START OPTION 7.8.3
DOES FILM POCKET MOVE ?
NO
YES
MAKE SURE THAT RIBBON CABLE BETWEEN PCB A3 AND PCB A2 IS SEATED CORRECTLY
SUPPLY VOLTAGES AT PCB A2,A3 OK ?
NO
USE WIRING DIAGRAMS TO FIND OPEN CIRCUIT
YES
CAN PROBLEM BE SOLVED BY REPLACING PCB A2/A3 ?
YES
REPLACE FAULTY PCB
NO
REPLACE STEPPERMOTOR
A

figure 5-64

ERROR CODE 82
CONT.
ZERO POSITION
NOT REACHED

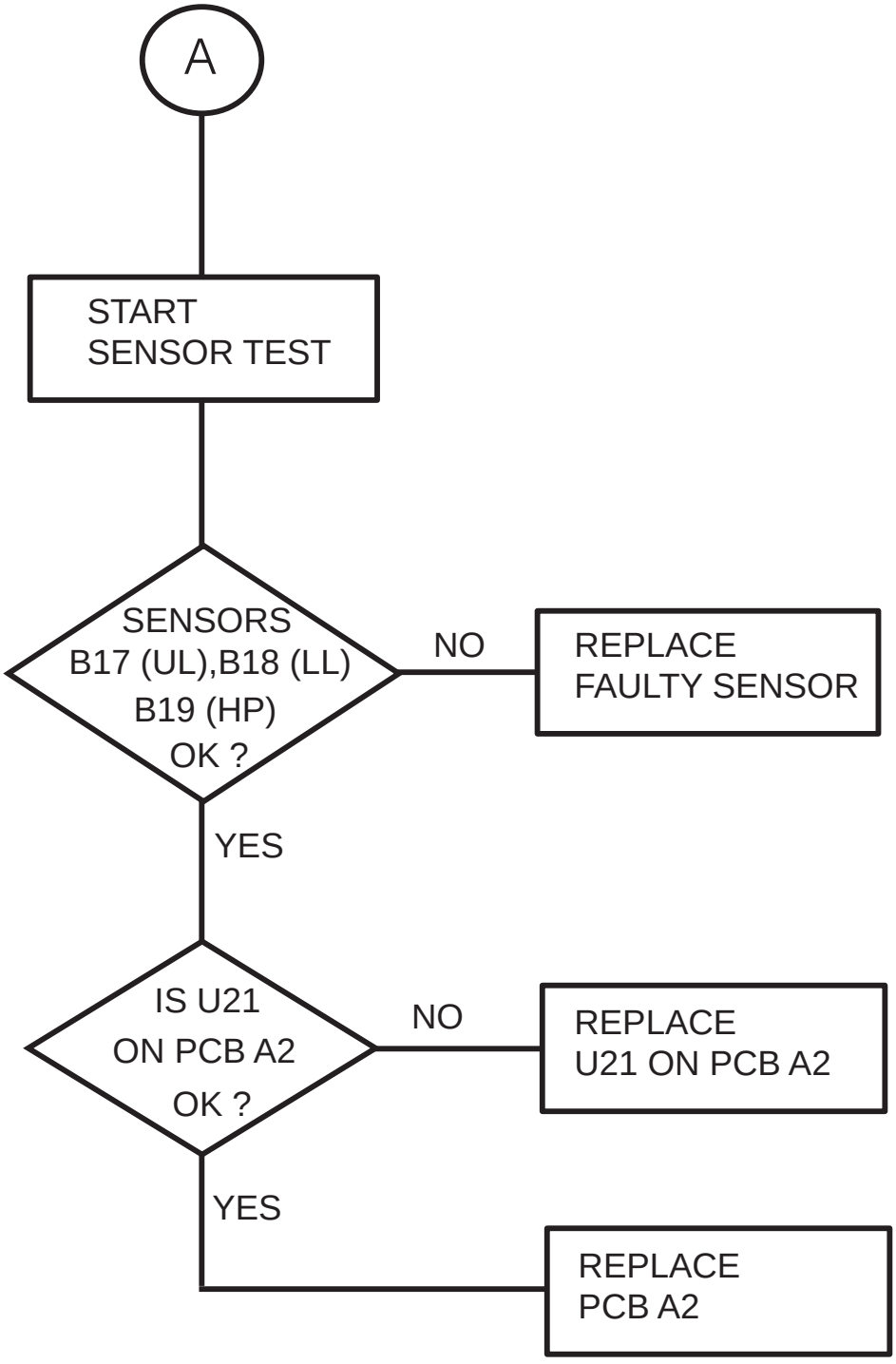


figure 5-65

ERROR CODE 83

CASSETTE NOT LOADED

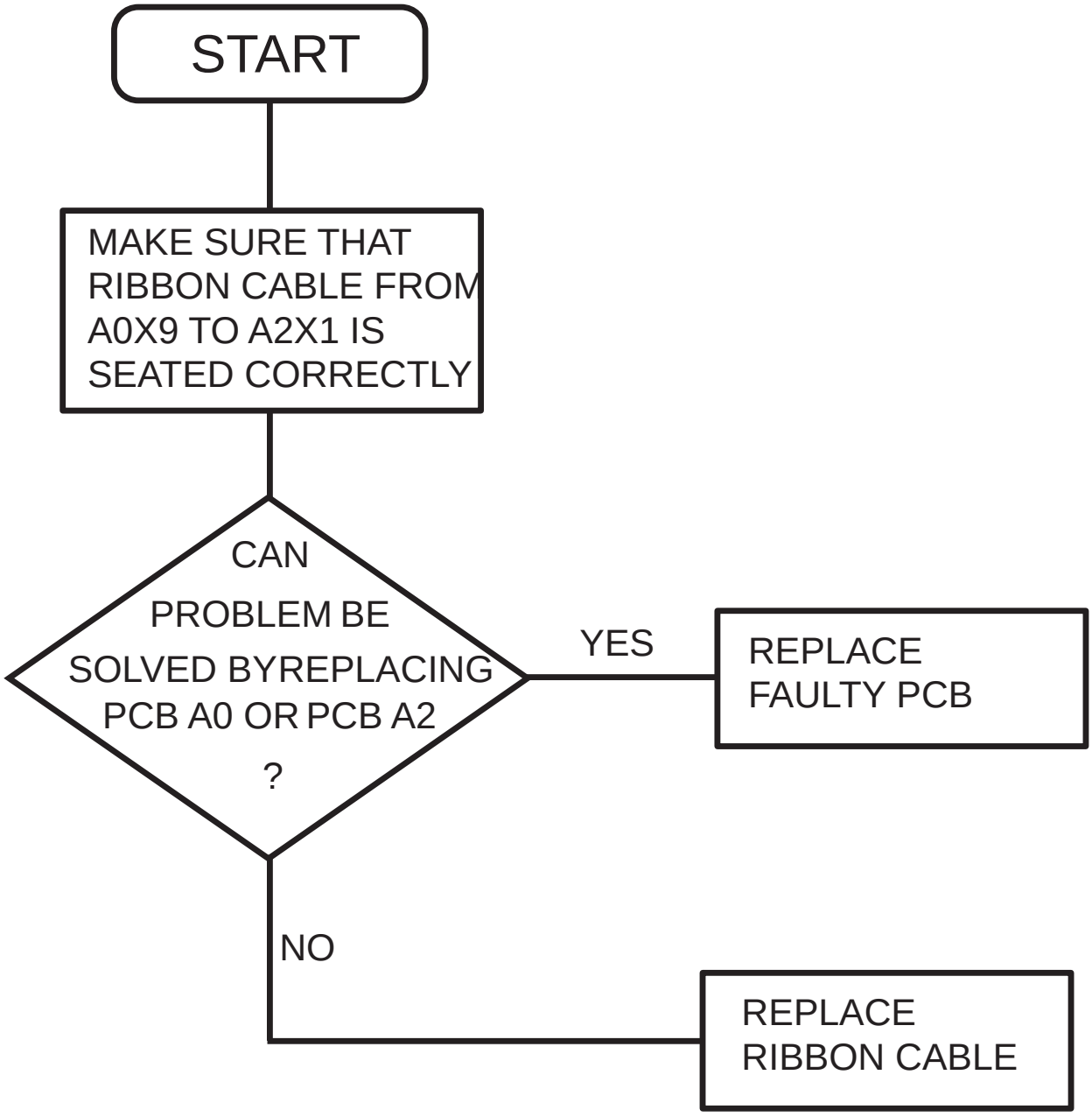


figure 5-66

ERROR CODE 92

SERIAL UNLOAD
CASSETTE NOT LOADED

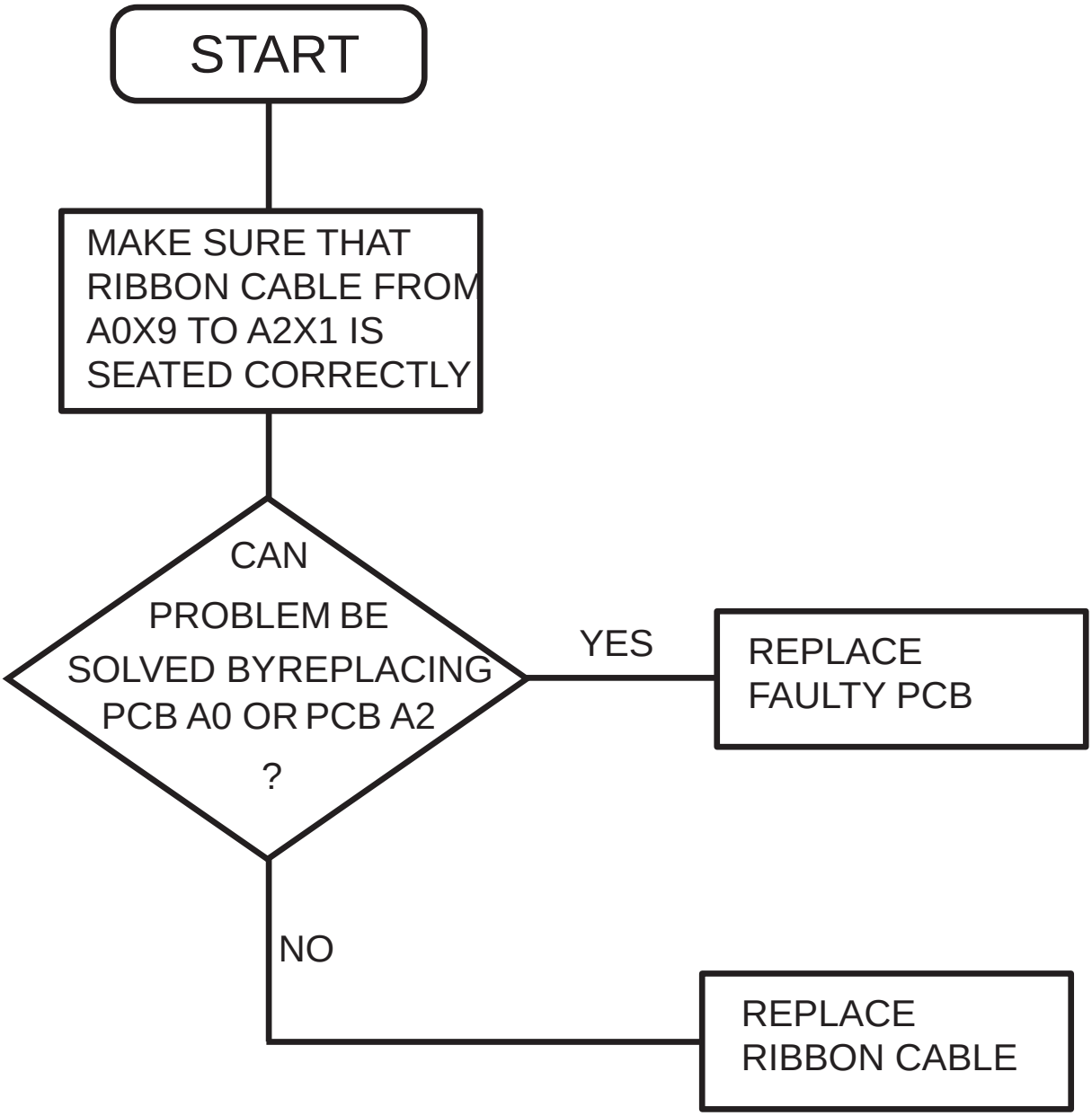
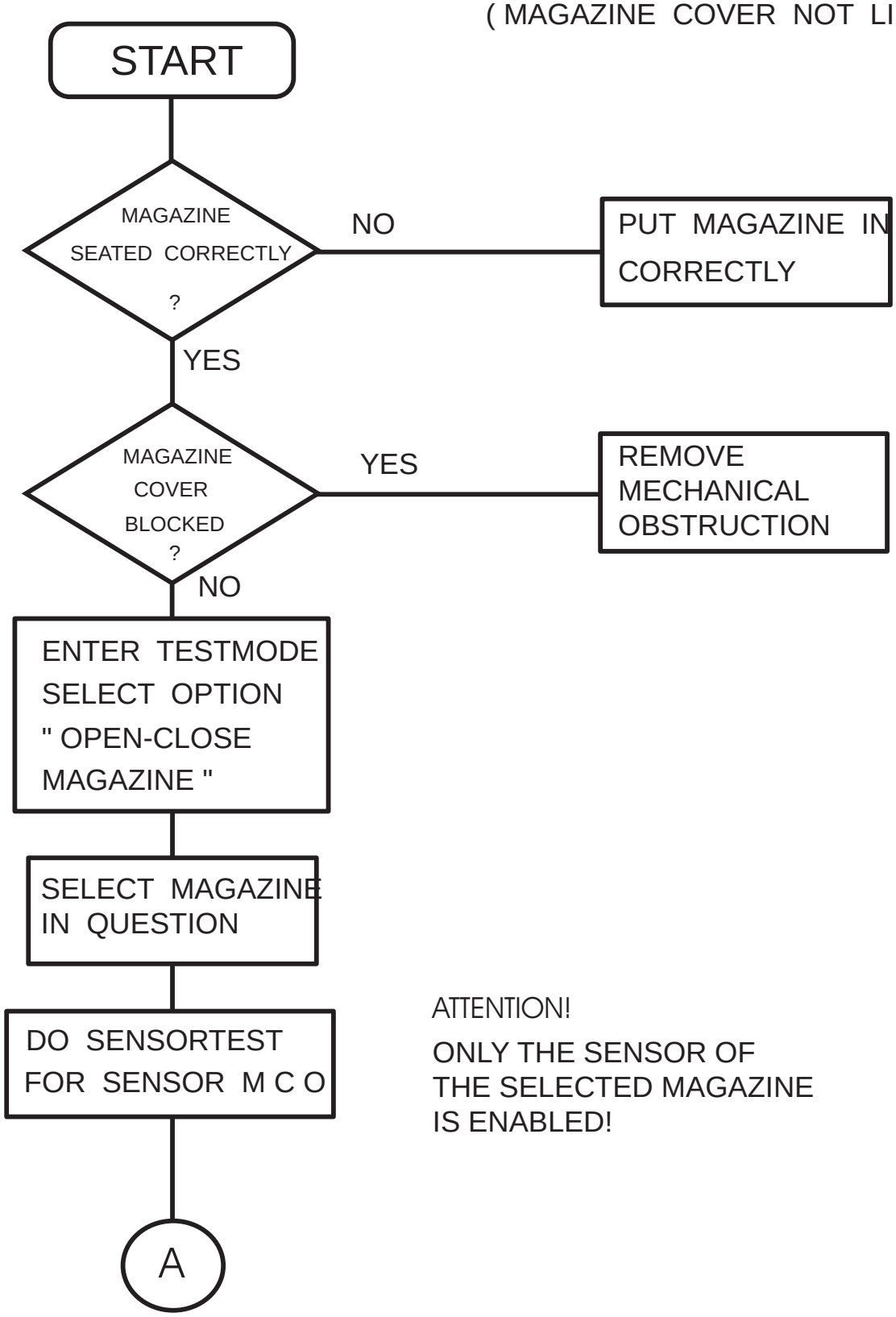


figure 5-67

ERROR CODE A 1

(MAGAZINE COVER NOT LIFTED)



ATTENTION!

ONLY THE SENSOR OF
THE SELECTED MAGAZINE
IS ENABLED!

figure 5-68

ERROR CODE A1
CONT.

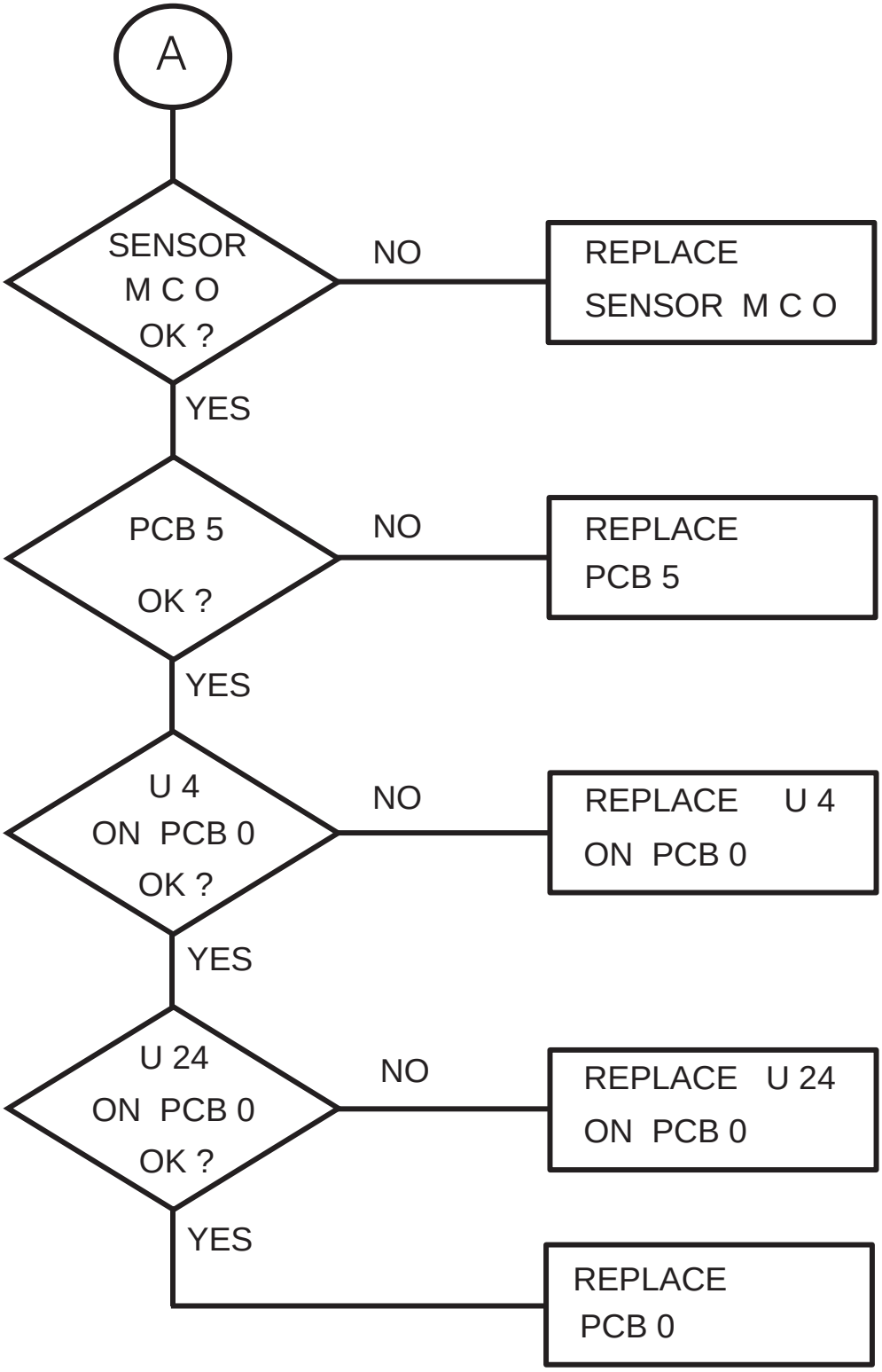


figure 5-69

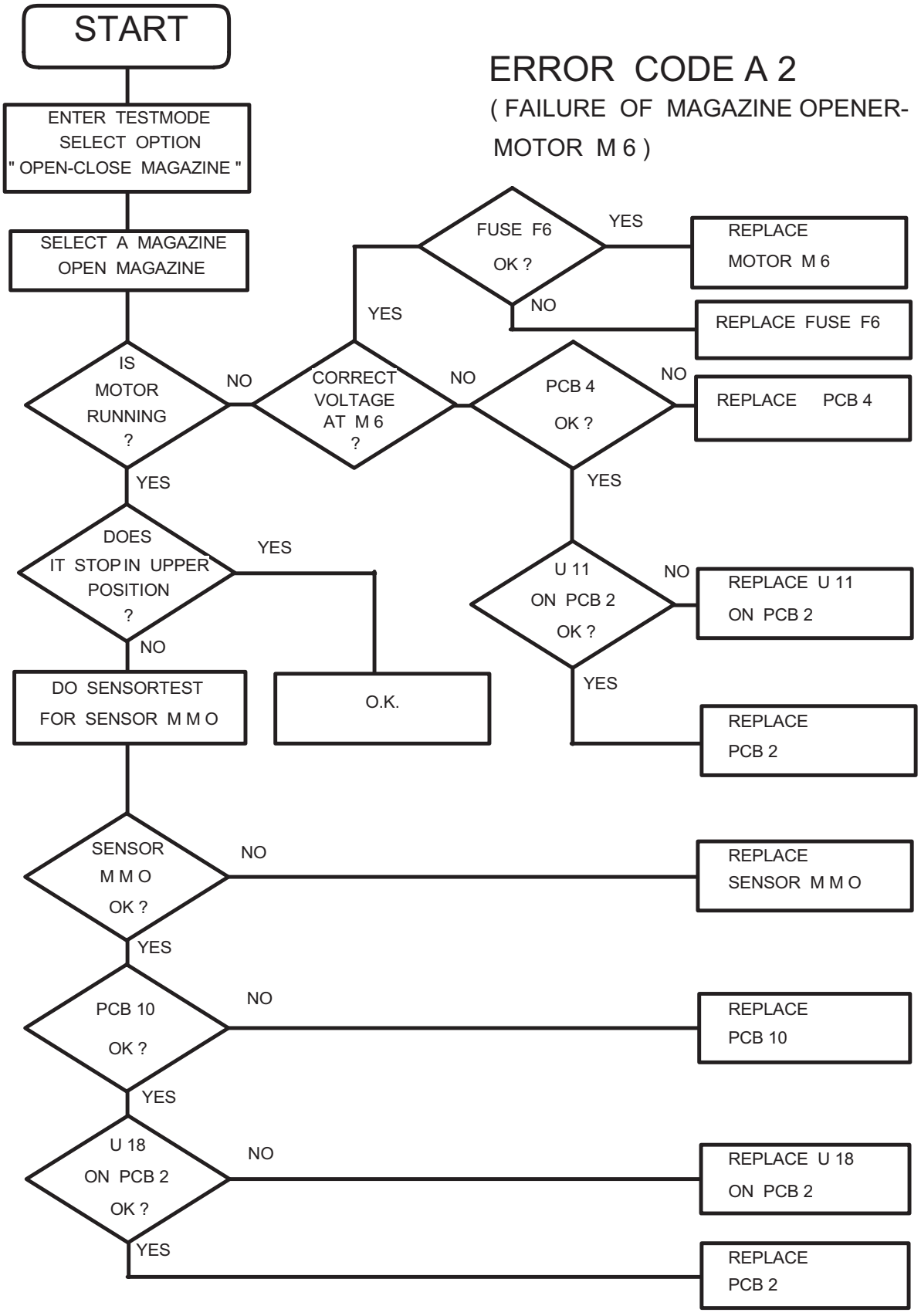

START
ERROR CODE A 2
(FAILURE OF MAGAZINE OPENER-MOTOR M 6)
ENTER TESTMODE
SELECT OPTION
" OPEN-CLOSE MAGAZINE "
SELECT A MAGAZINE
OPEN MAGAZINE
IS MOTOR RUNNING ?
NO
YES
CORRECT VOLTAGE AT M 6 ?
NO
YES
FUSE F6 OK ?
YES
REPLACE MOTOR M 6
NO
REPLACE FUSE F6
PCB 4 OK ?
NO
REPLACE PCB 4
YES
DOES IT STOP IN UPPER POSITION ?
YES
O.K.
NO
DO SENSORTEST FOR SENSOR M M O
U 11 ON PCB 2 OK ?
NO
REPLACE U 11 ON PCB 2
YES
REPLACE PCB 2
SENSOR M M O OK ?
NO
REPLACE SENSOR M M O
YES
PCB 10 OK ?
NO
REPLACE PCB 10
YES
U 18 ON PCB 2 OK ?
NO
REPLACE U 18 ON PCB 2
YES
REPLACE PCB 2

figure 5-70

ERROR CODE A 3

(FAILURE OF FILMPOCKETMOTOR M 7)

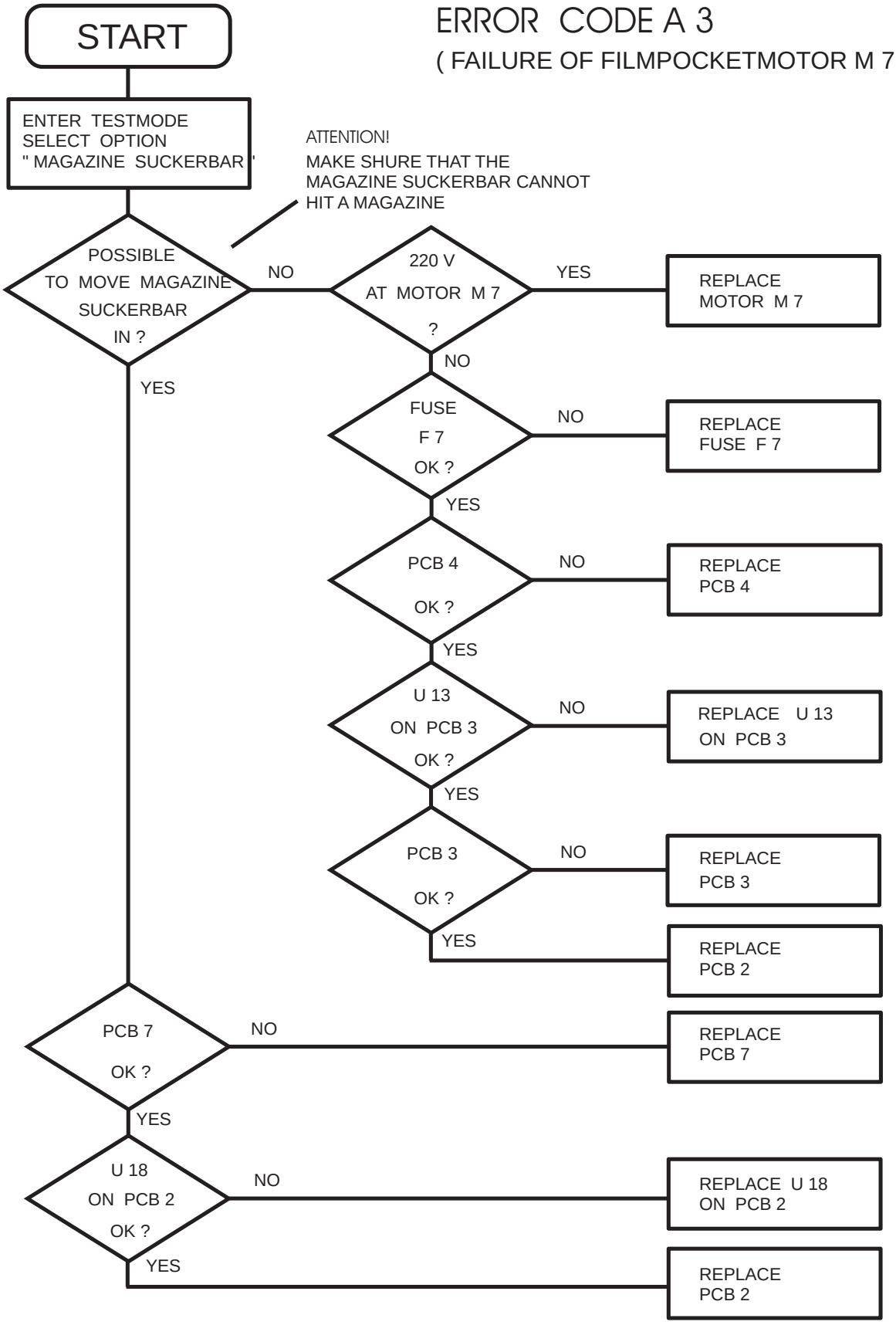


figure 5-71

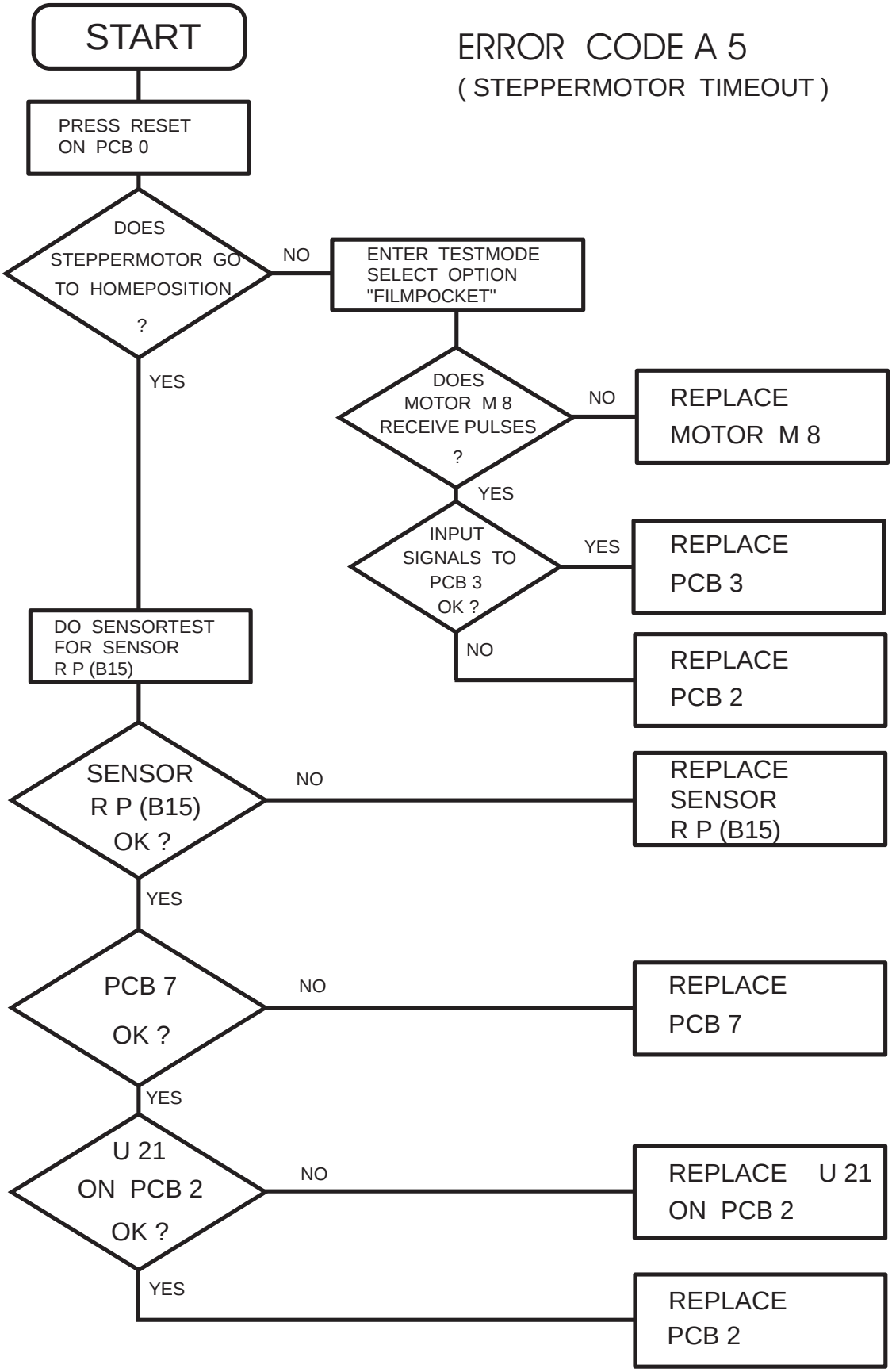

START
ERROR CODE A 5
(STEPPERMOTOR TIMEOUT)
PRESS RESET
ON PCB 0
DOES
STEPPERMOTOR GO
TO HOMEPOSITION
?
NO
ENTER TESTMODE
SELECT OPTION
"FILMPOCKET"
YES
DOES
MOTOR M 8
RECEIVE PULSES
?
NO
REPLACE
MOTOR M 8
YES
INPUT
SIGNALS TO
PCB 3
OK ?
YES
REPLACE
PCB 3
NO
REPLACE
PCB 2
DO SENSORTEST
FOR SENSOR
R P (B15)
SENSOR
R P (B15)
OK ?
NO
REPLACE
SENSOR
R P (B15)
YES
PCB 7
OK ?
NO
REPLACE
PCB 7
YES
U 21
ON PCB 2
OK ?
NO
REPLACE U 21
ON PCB 2
YES
REPLACE
PCB 2

figure 5-72

ERROR CODE AB

(FILM LOST IN MAGAZINE 3 TIMES)

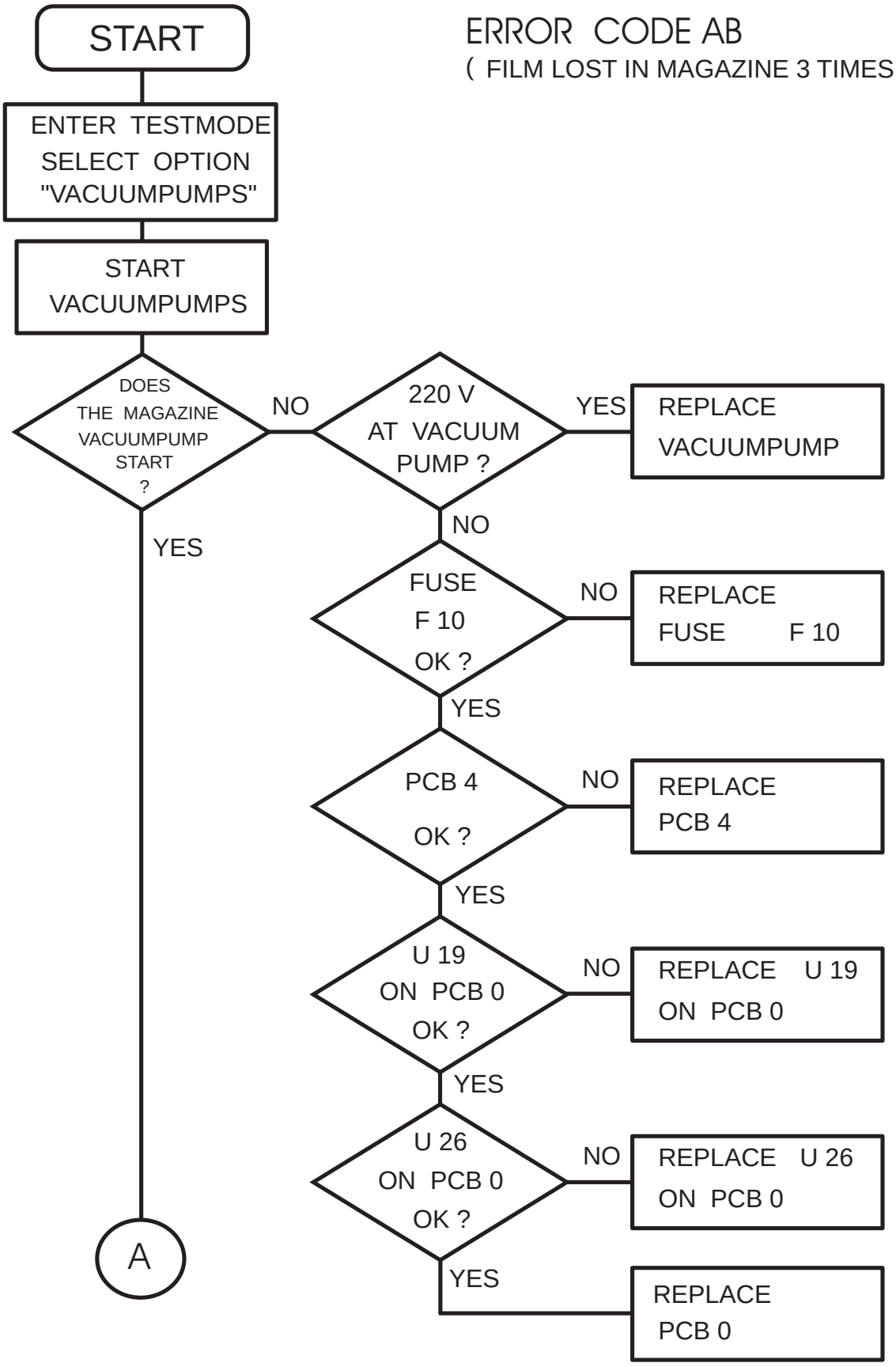


figure 5-73

ERROR CODE AB
CONT.

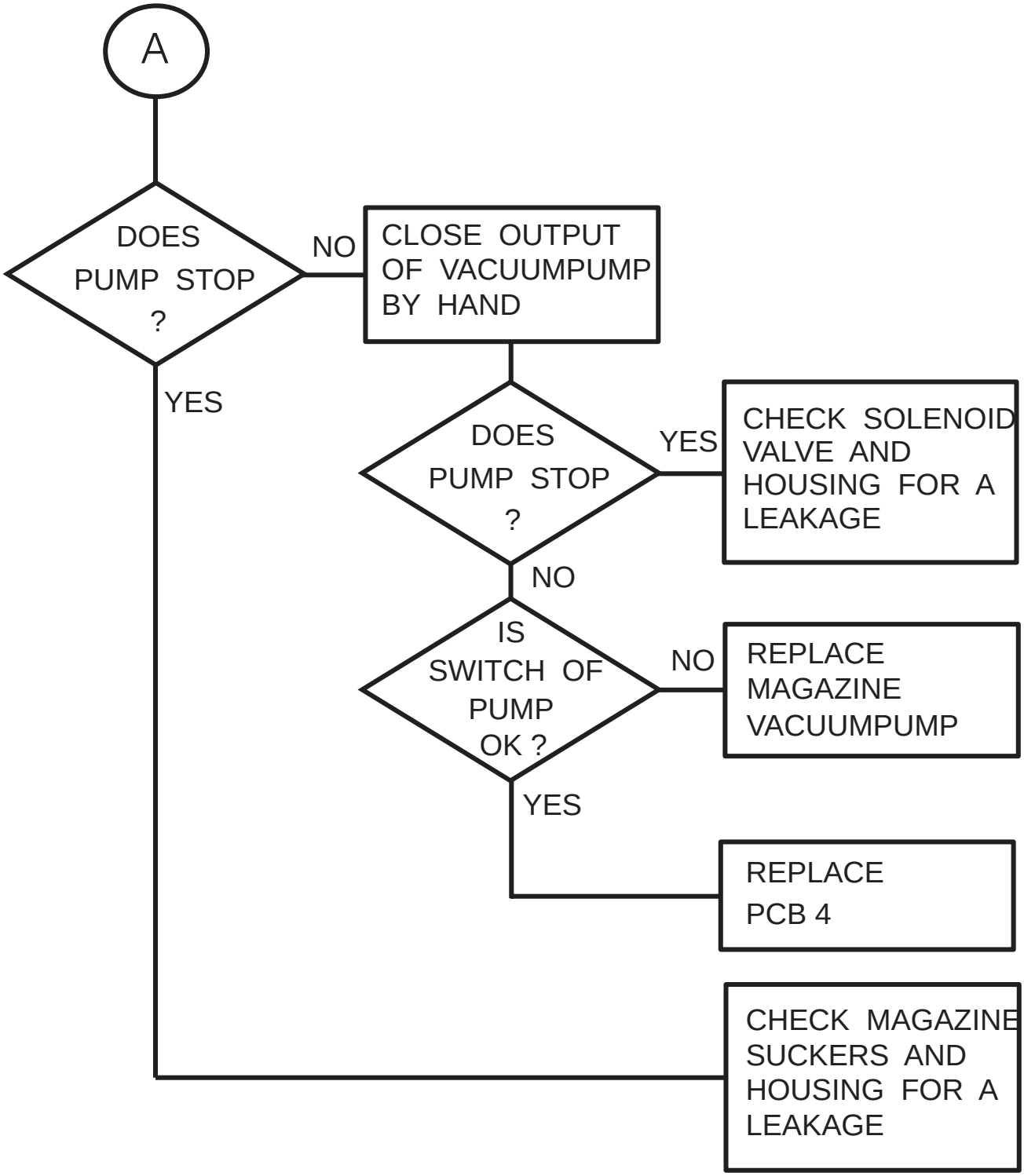


figure 5-74

ERROR CODE AD
(DOUBLE FILM SENSED 3 TIMES)

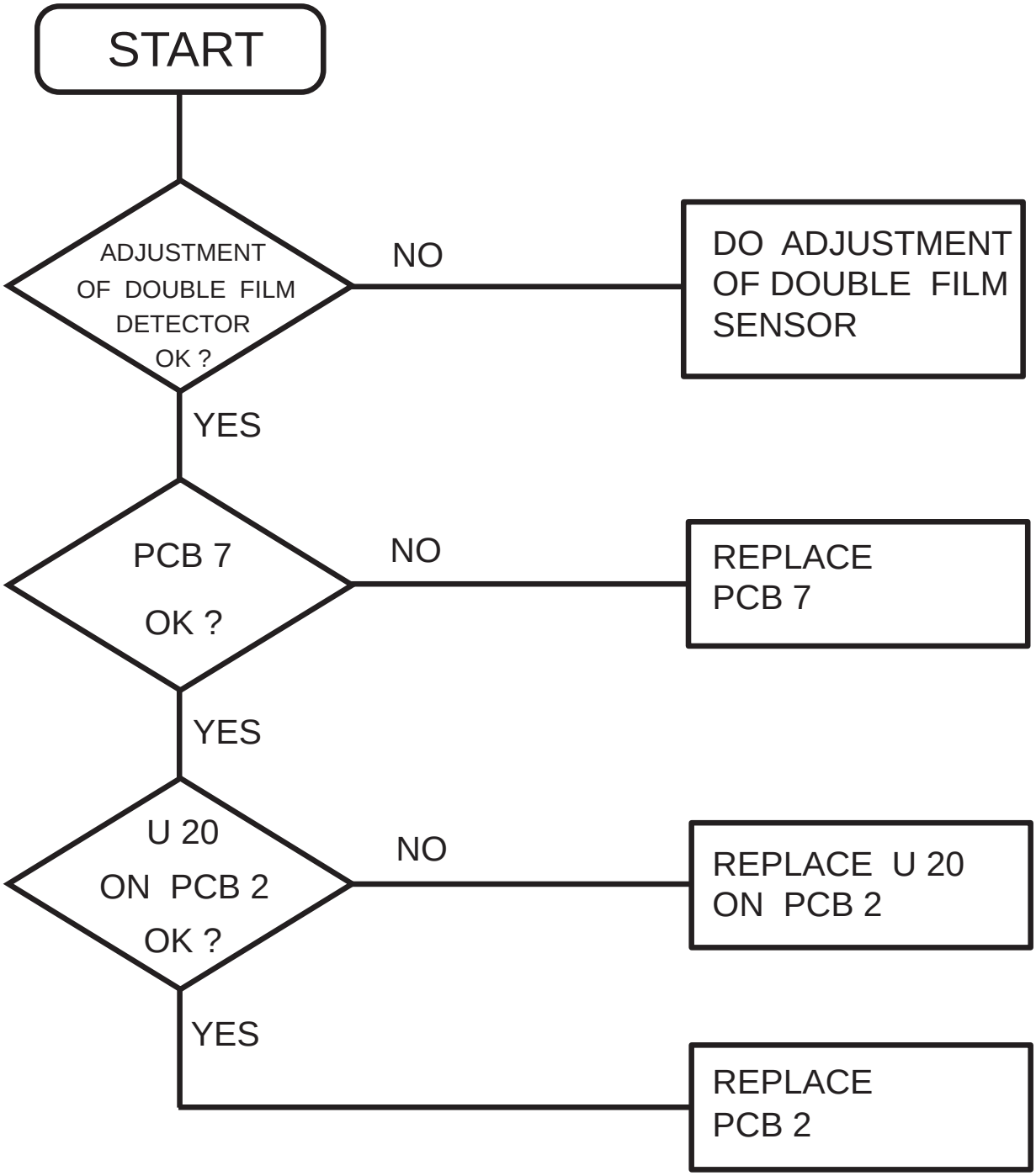


figure 5-75

ERROR CODE AE

MAGAZINE FOUND EMPTY

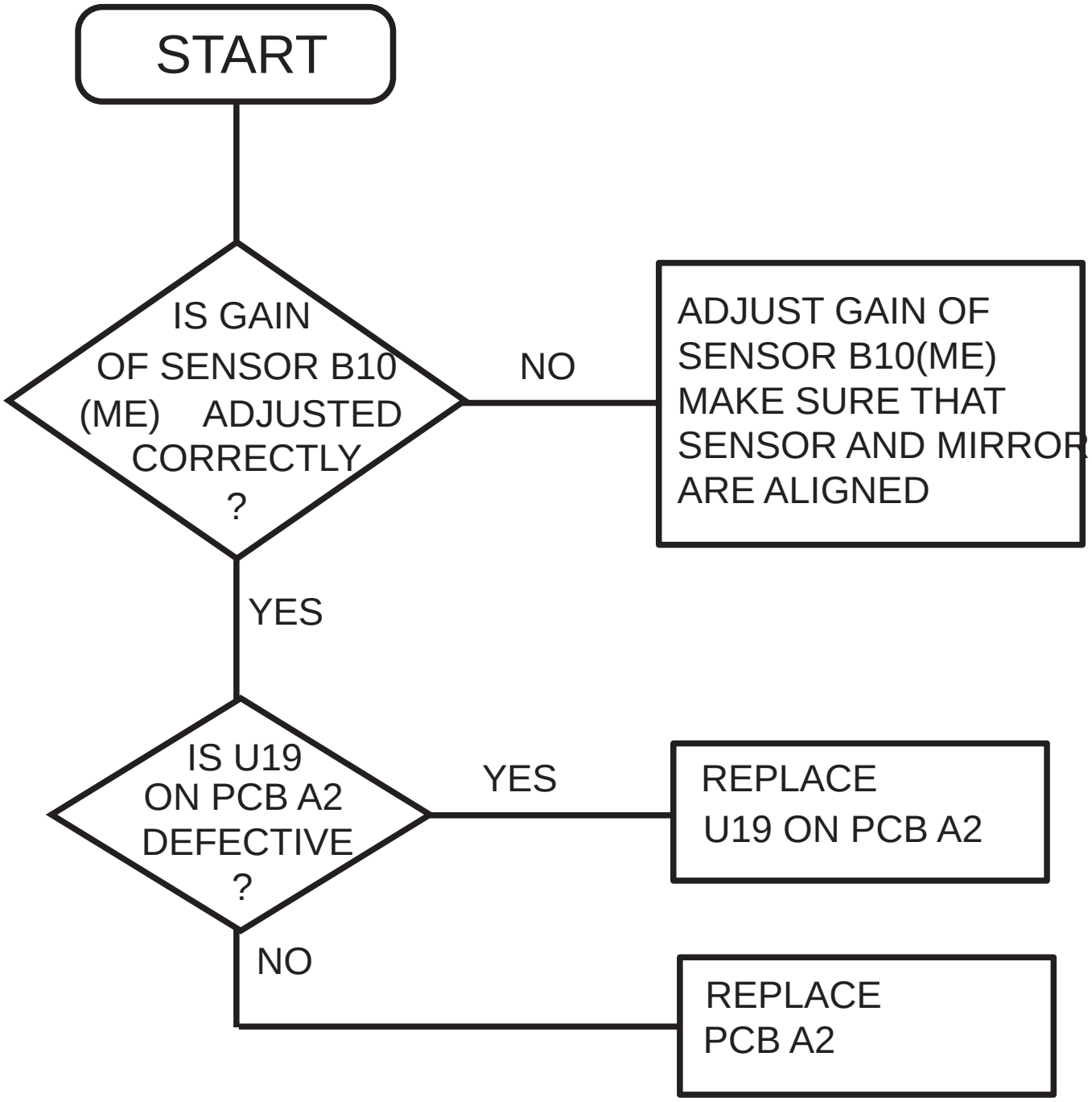


figure 5-76

ERROR CODE AF

(FILM LOST DURING TRANSPORT TO CASSETTE)

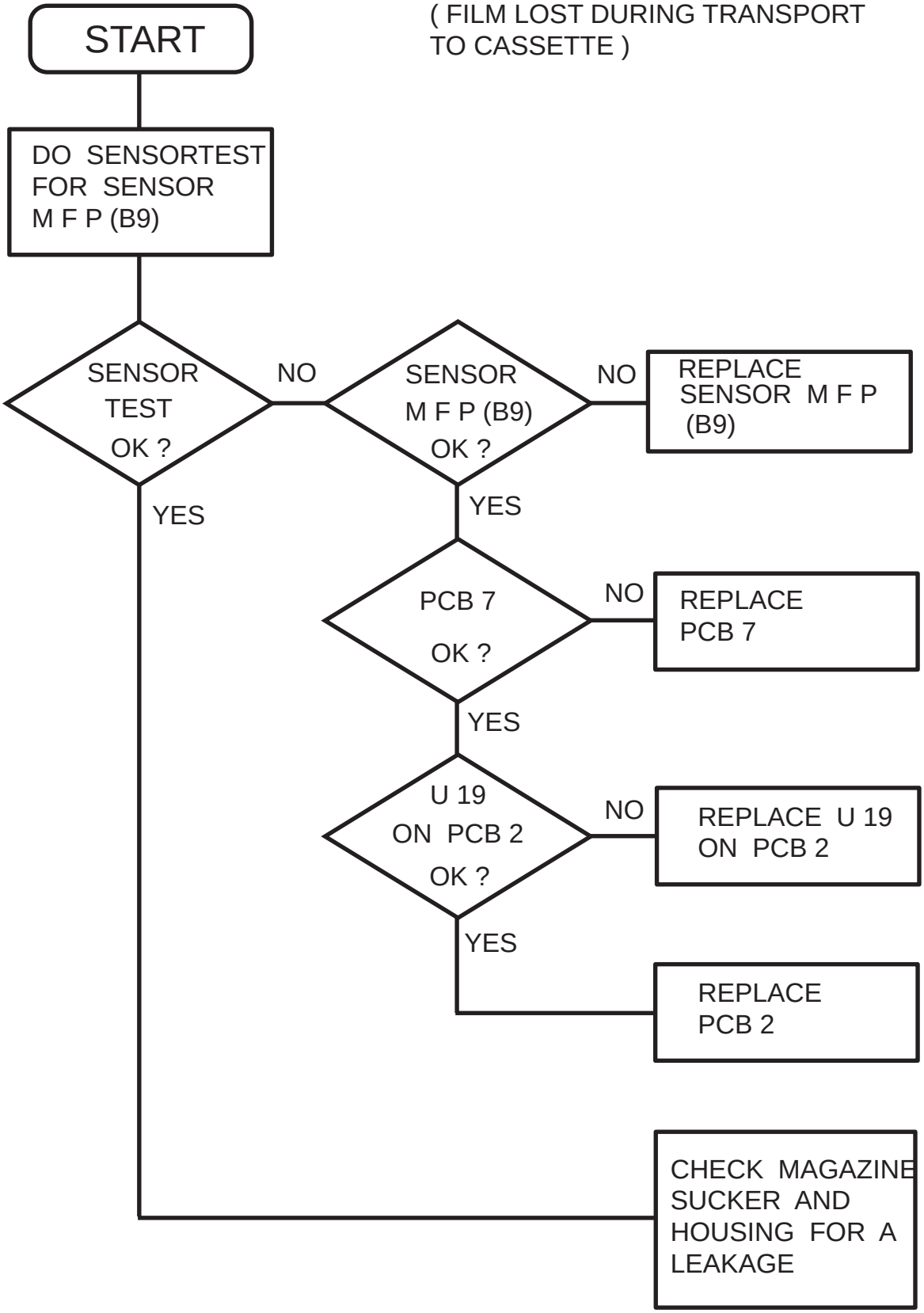


figure 5-77

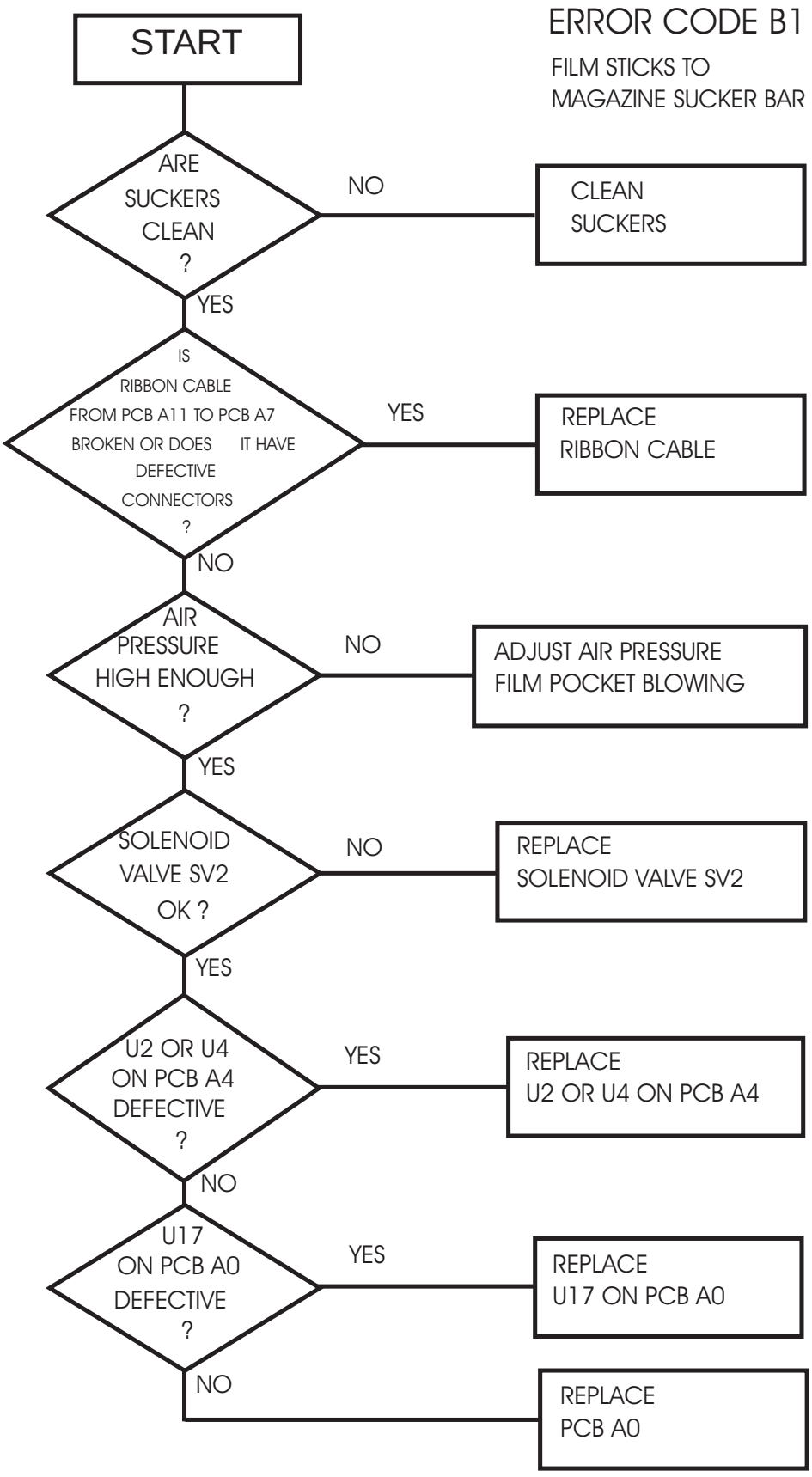

ERROR CODE B1
FILM STICKS TO
MAGAZINE SUCKER BAR
START
ARE SUCKERS CLEAN ?
NO
CLEAN SUCKERS
YES
IS RIBBON CABLE FROM PCB A11 TO PCB A7 BROKEN OR DOES IT HAVE DEFECTIVE CONNECTORS ?
YES
REPLACE RIBBON CABLE
NO
AIR PRESSURE HIGH ENOUGH ?
NO
ADJUST AIR PRESSURE FILM POCKET BLOWING
YES
SOLENOID VALVE SV2 OK ?
NO
REPLACE SOLENOID VALVE SV2
YES
U2 OR U4 ON PCB A4 DEFECTIVE ?
YES
REPLACE U2 OR U4 ON PCB A4
NO
U17 ON PCB A0 DEFECTIVE ?
YES
REPLACE U17 ON PCB A0
NO
REPLACE PCB A0

figure 5-78

ERROR CODE B3

CASSETTE NOT LOADED

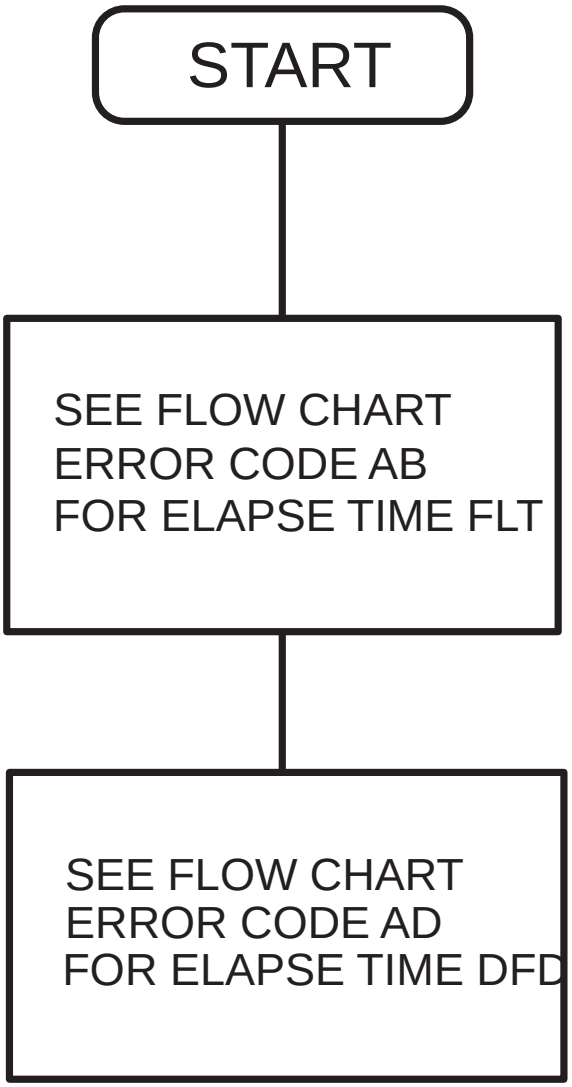


figure 5-79

ERROR CODE B4

FILM PICK UP PROBLEM
IN MAGAZINE

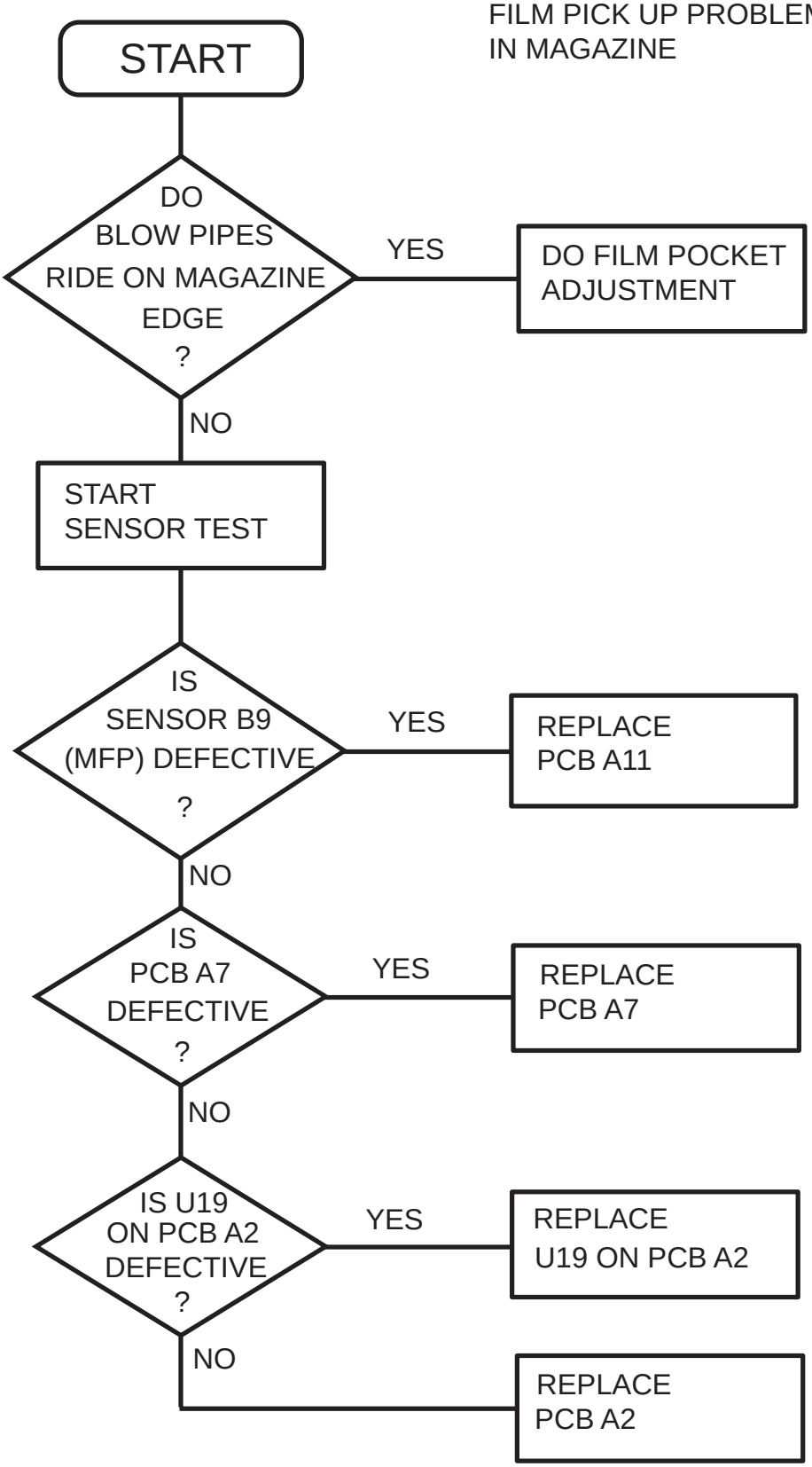


figure 5-80

CHAPTER 6

PCB DIAGNOSTICS

MASTER PROCESSOR PCB A0

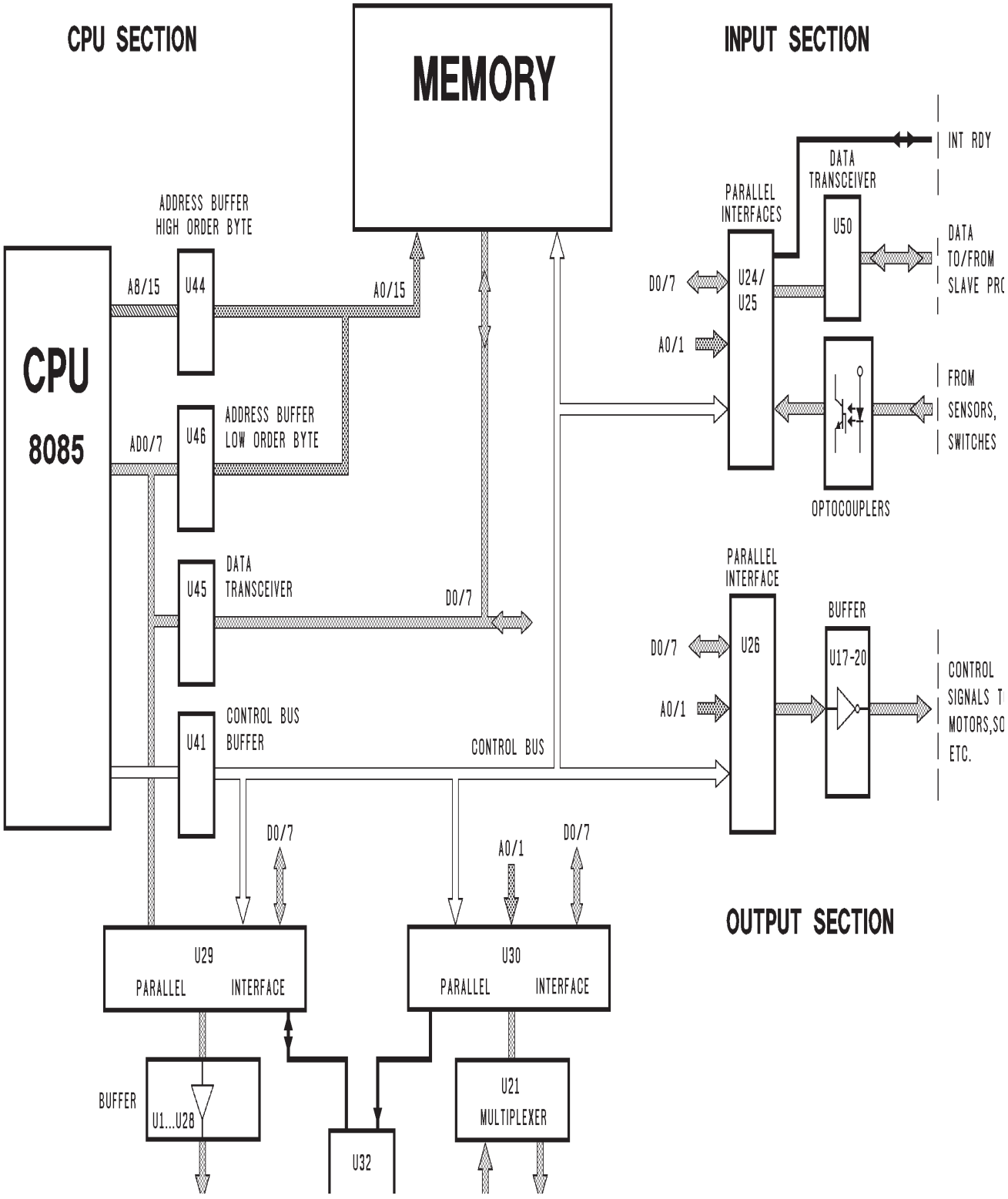


figure 6-1

TESTPOINTS

- TP1 = GND
- TP2 = +5V
- TP4 = SO STATUS OUTPUT
  A LOGIC PEN must show pulses, because this SIGNAL will change when selecting MEMORY READ/WRITE
- TP10 = Output of CLOCK GENERATOR for the 8085. A LOGIC PEN will indicate PULSES continuously.

TEST OF OPTO COUPLERS U 3...U 16

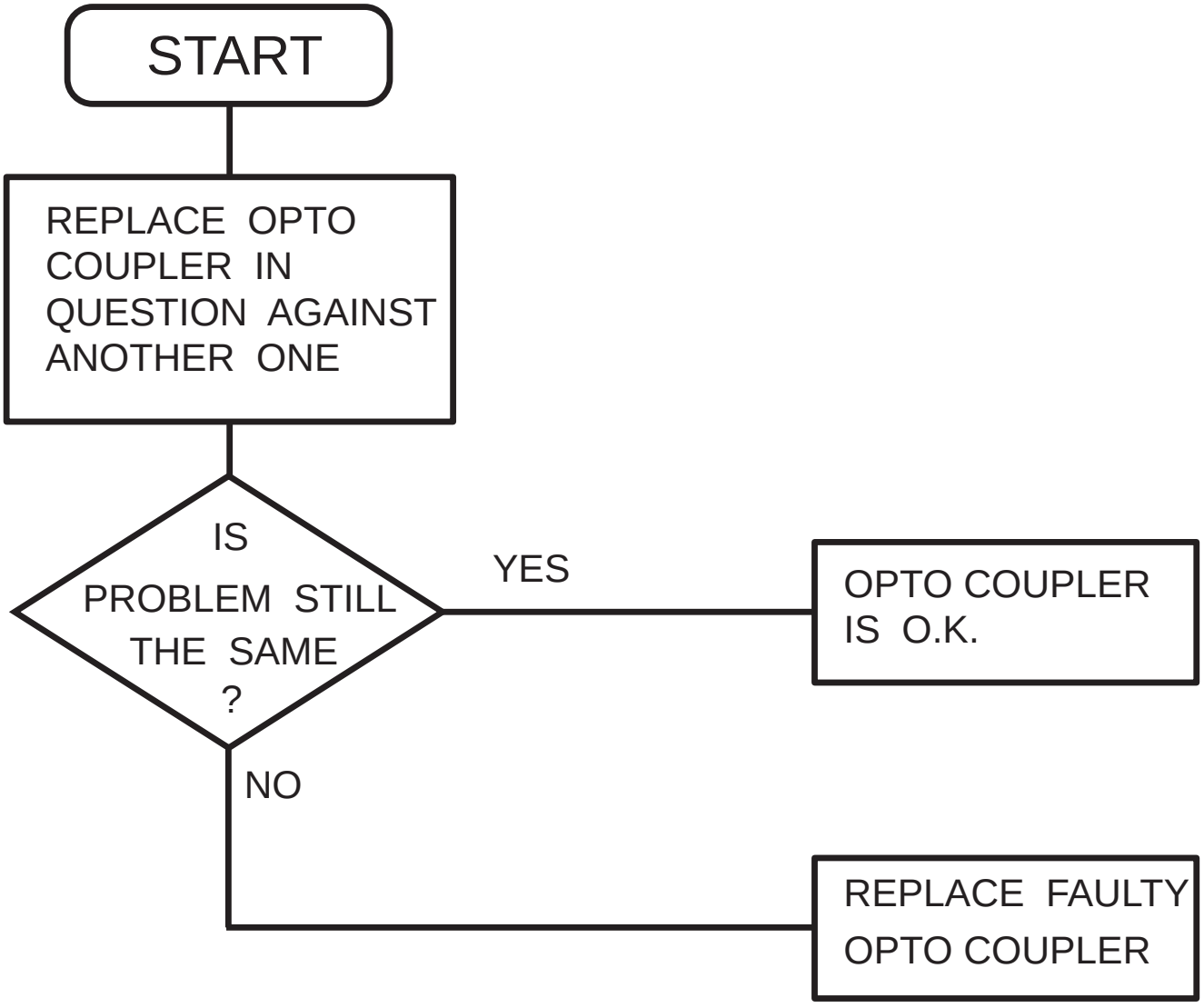


figure 6-2

TEST OF PARALLEL INTERFACES U 24,U 25,U 26 AND U 30

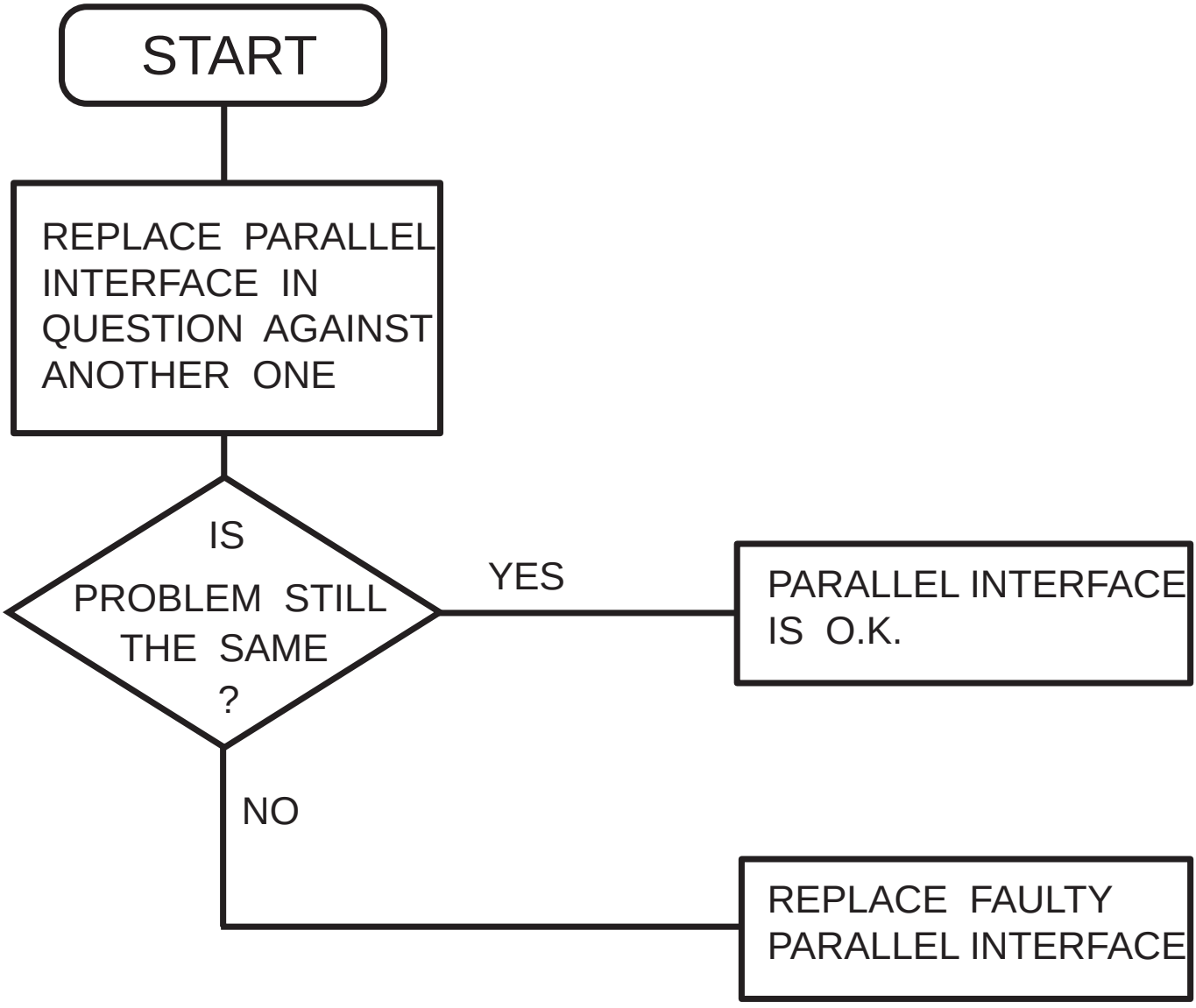


figure 6-3

SLAVE PROCESSOR PCB A2

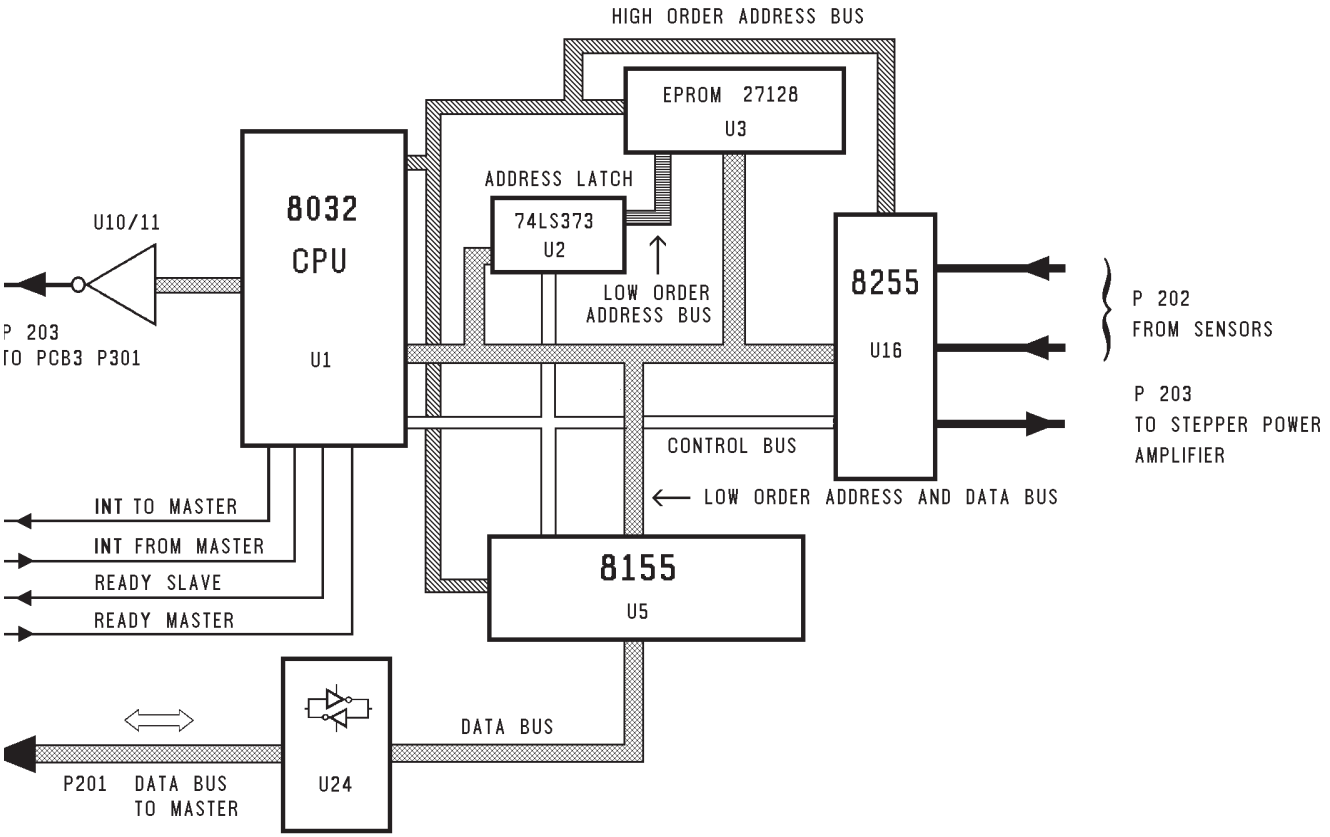


figure 6-4

TEST OF OPTO COUPLERS U18,U19,U20,U21

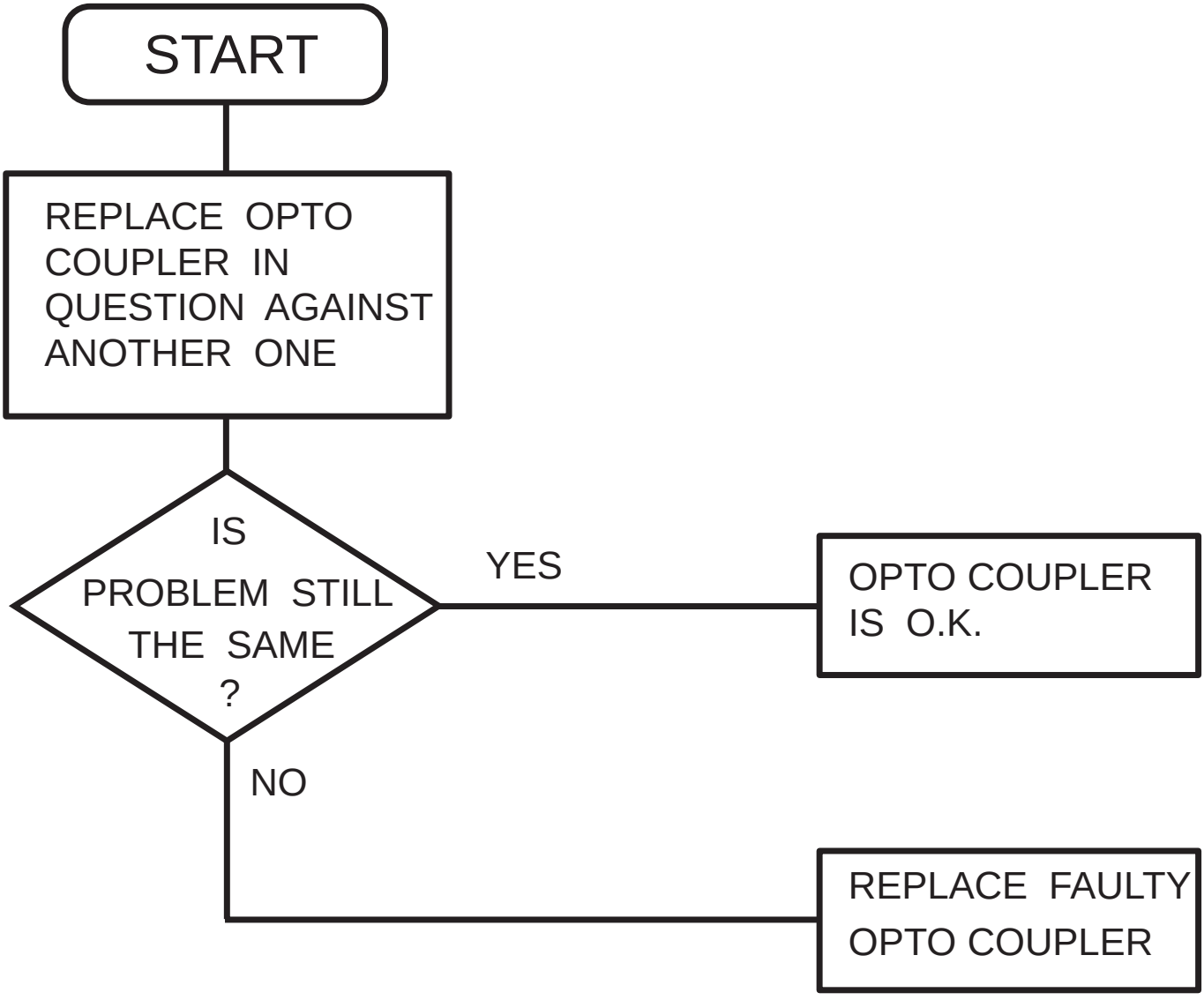


figure 6-5

TEST OF PARALLEL INTERFACE U4

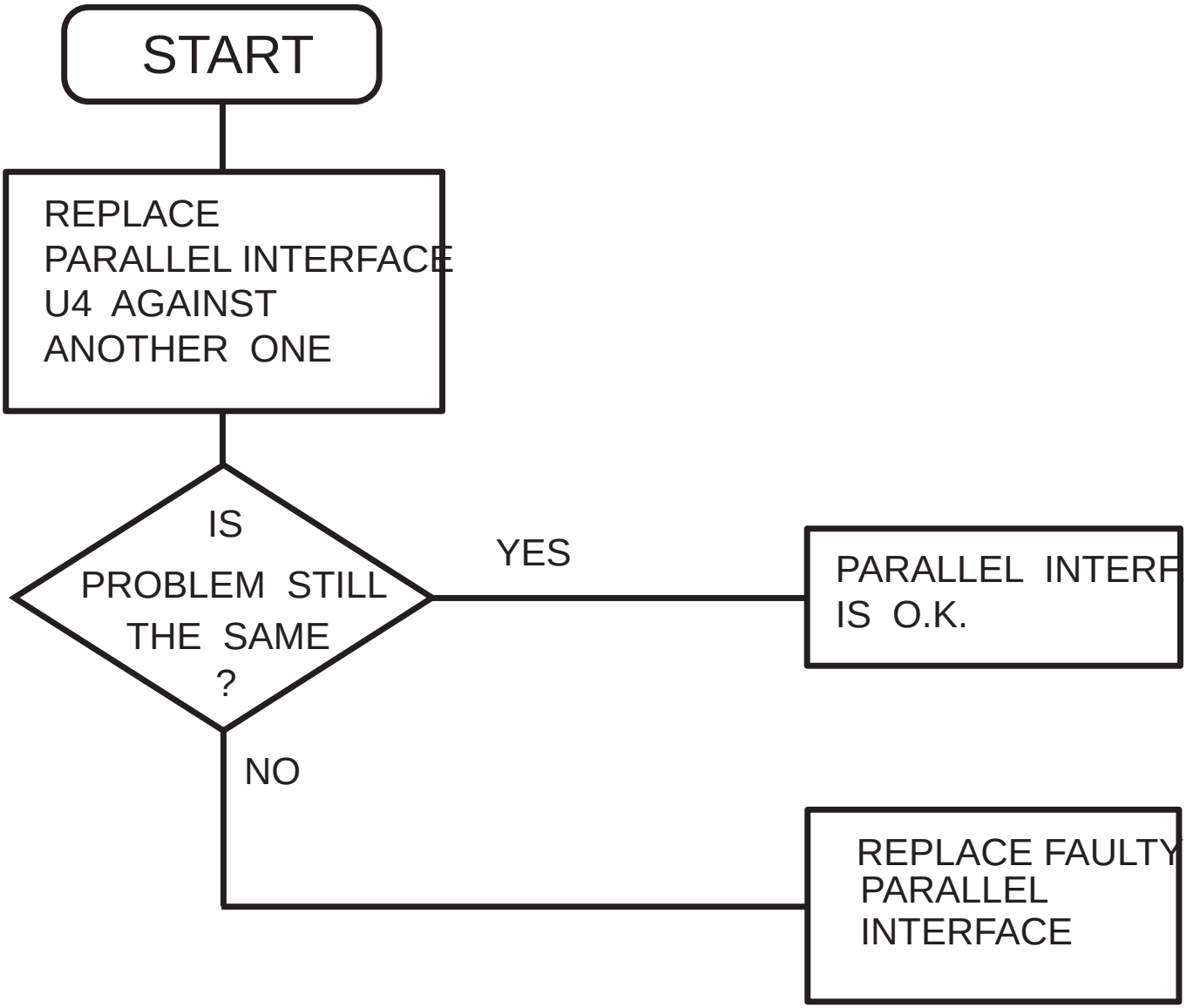


figure 6-6

TEST OF OUTPUT BUFFERS U 10 AND U 11

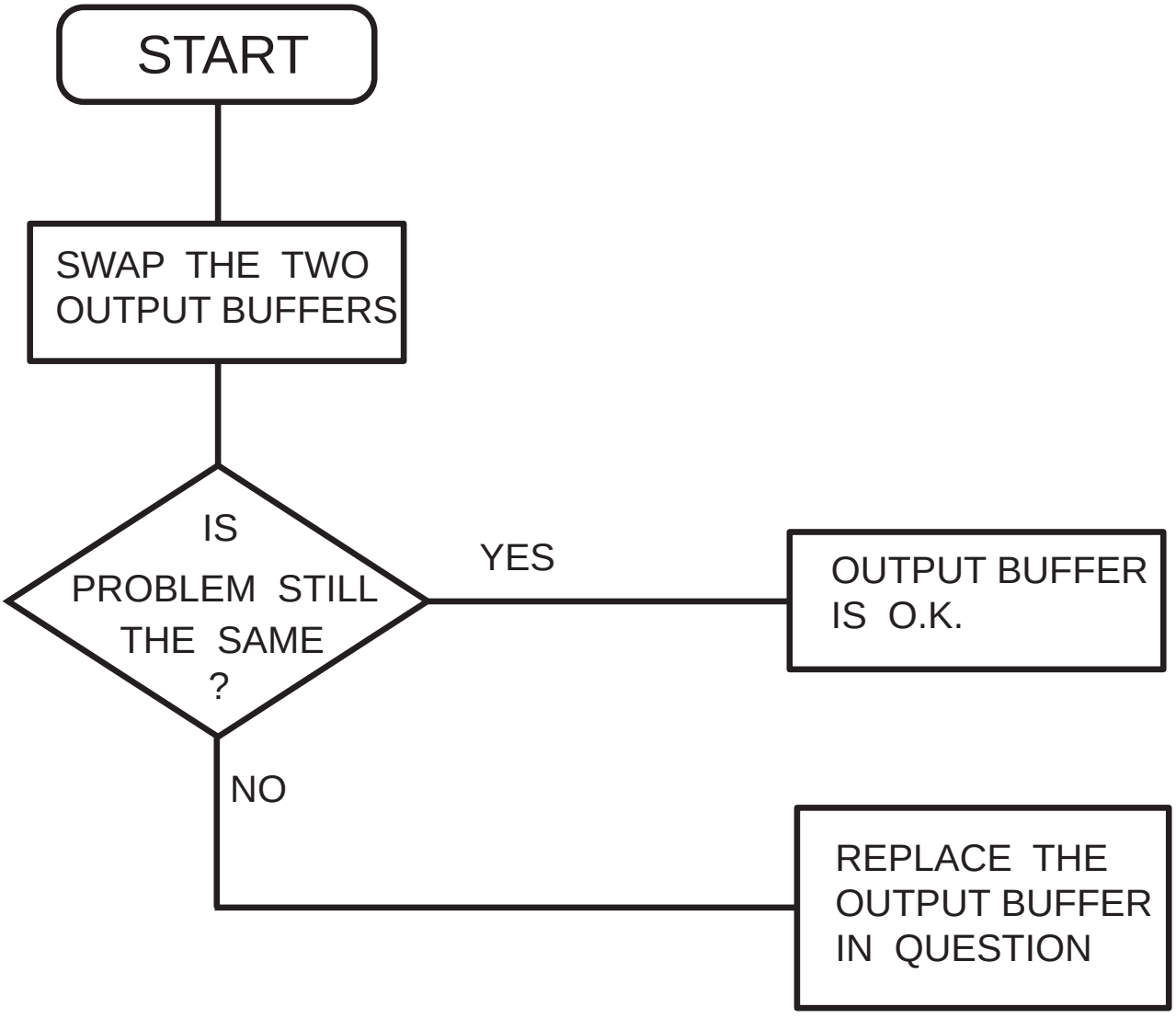


figure 6-7

POWER AMPLIFIER SLAVE PROCESSOR PCB A3

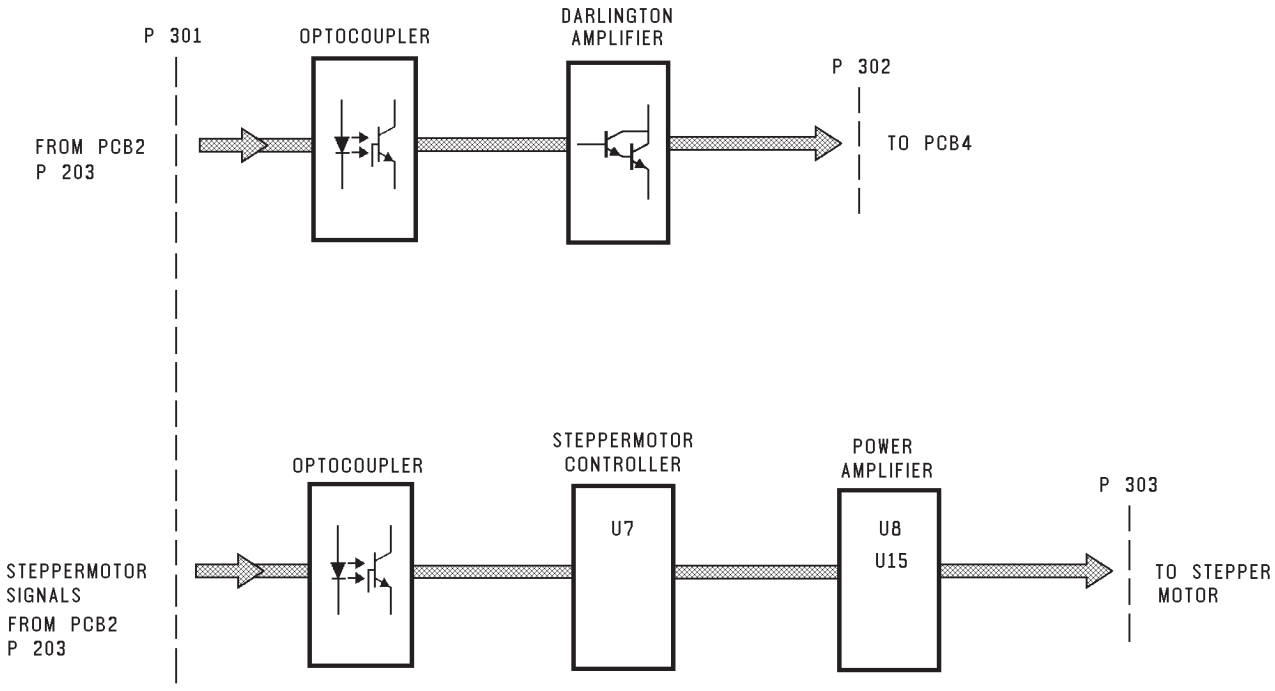


figure 6-8

TEST OF OPTO COUPLERS U9,U12 AND U13

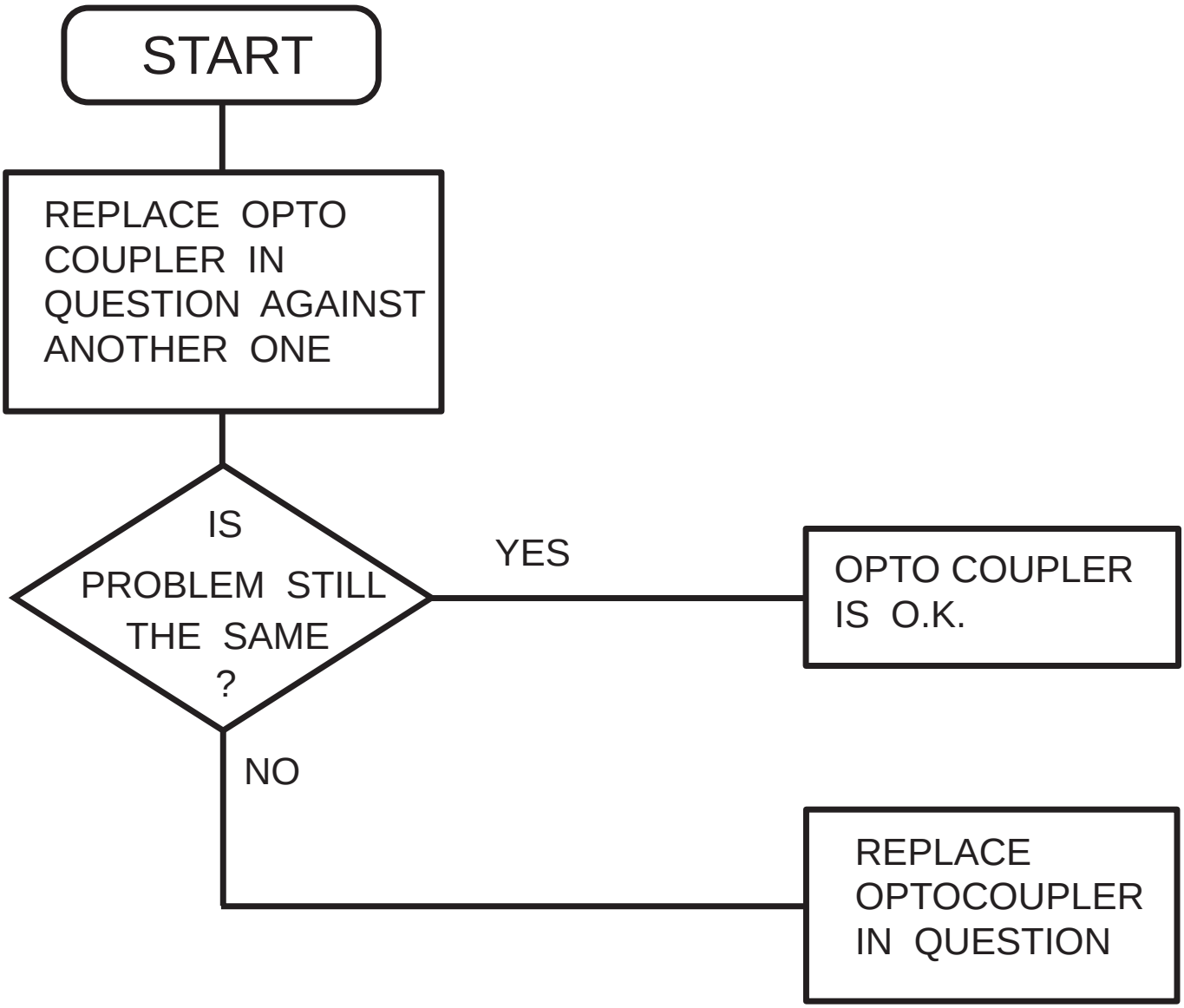


figure 6-9

POWER ELECTRONIC PCB A4

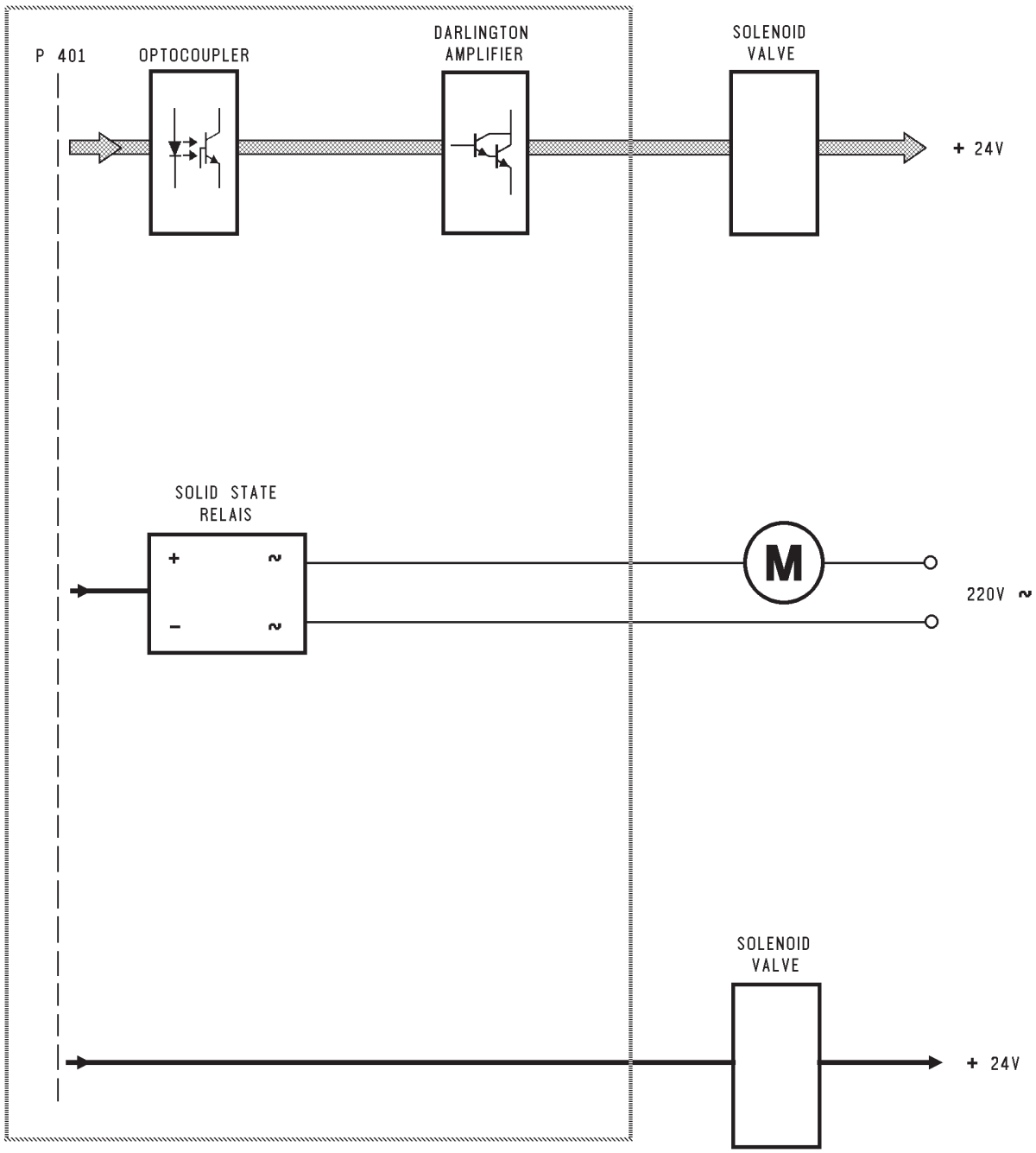


figure 6-10

TEST OF OPTO COUPLERS U1, U2 AND DARLINGTON AMPLIFIERS U3 AND U4

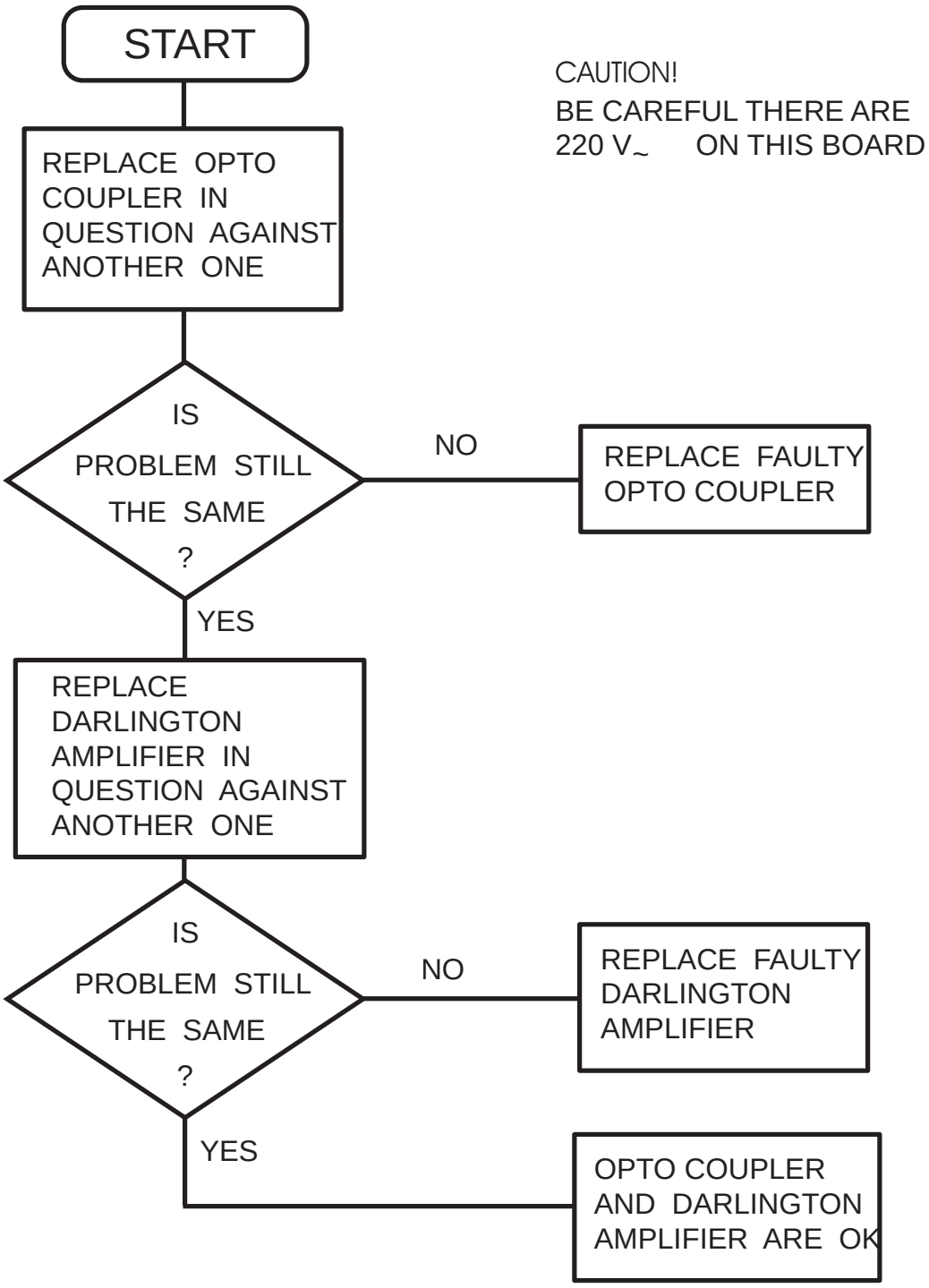


figure 6-11

TEST OF SOLID STATE RELAYS SR1...SR14

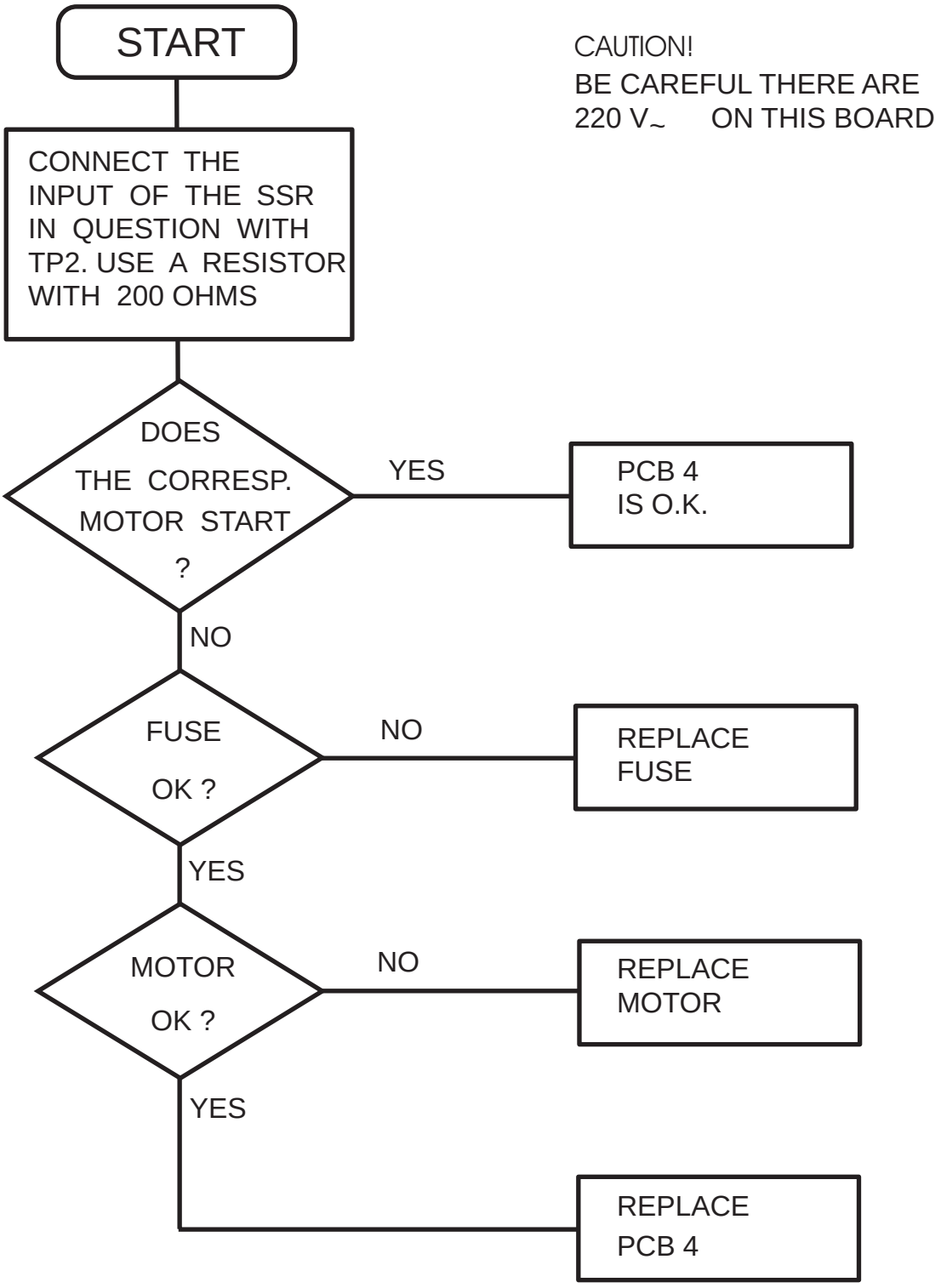


figure 6-12

MAGAZINE SIZE DECODER PCB A5/6

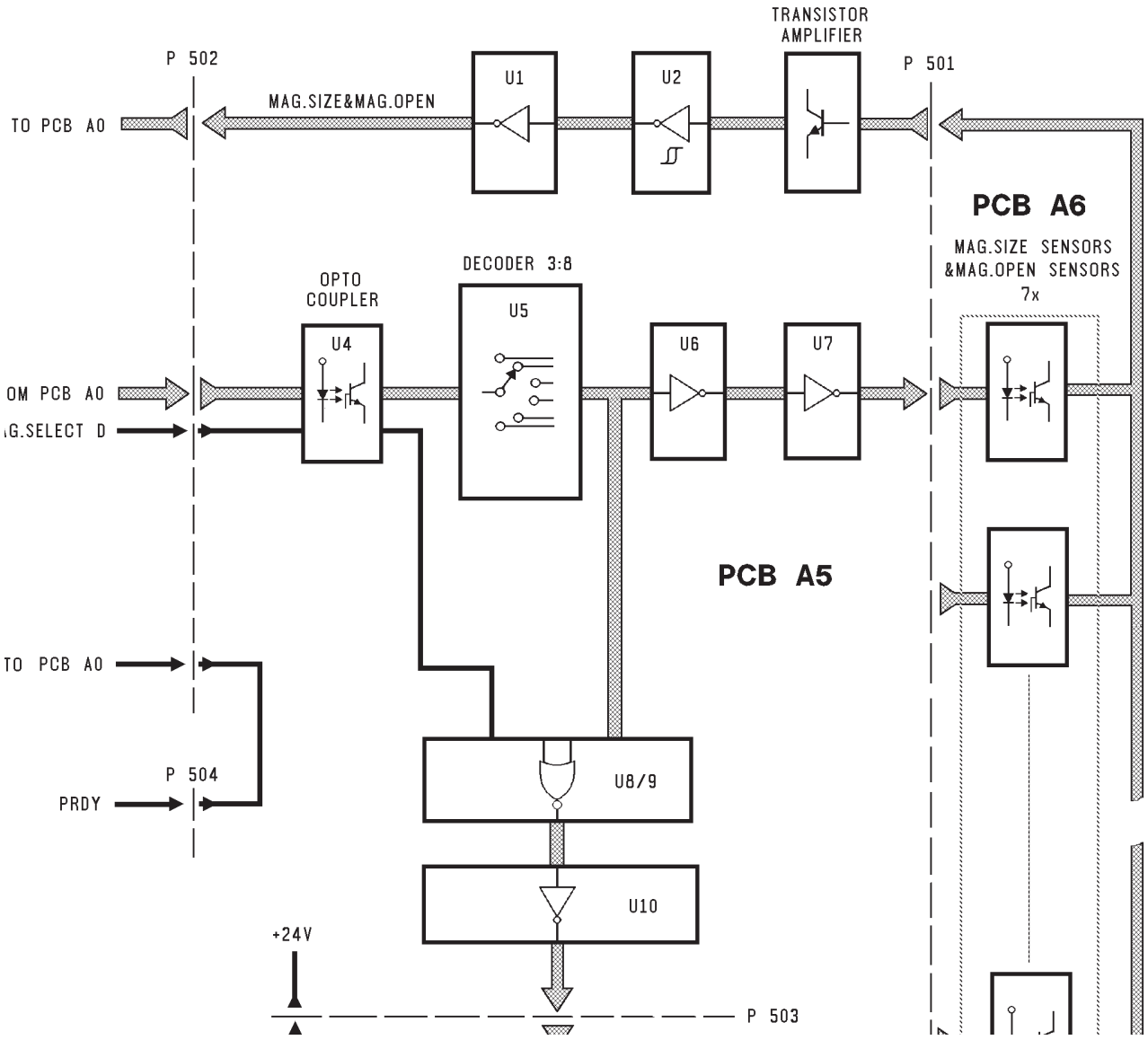


figure 6-13

MAGAZINE SIZE

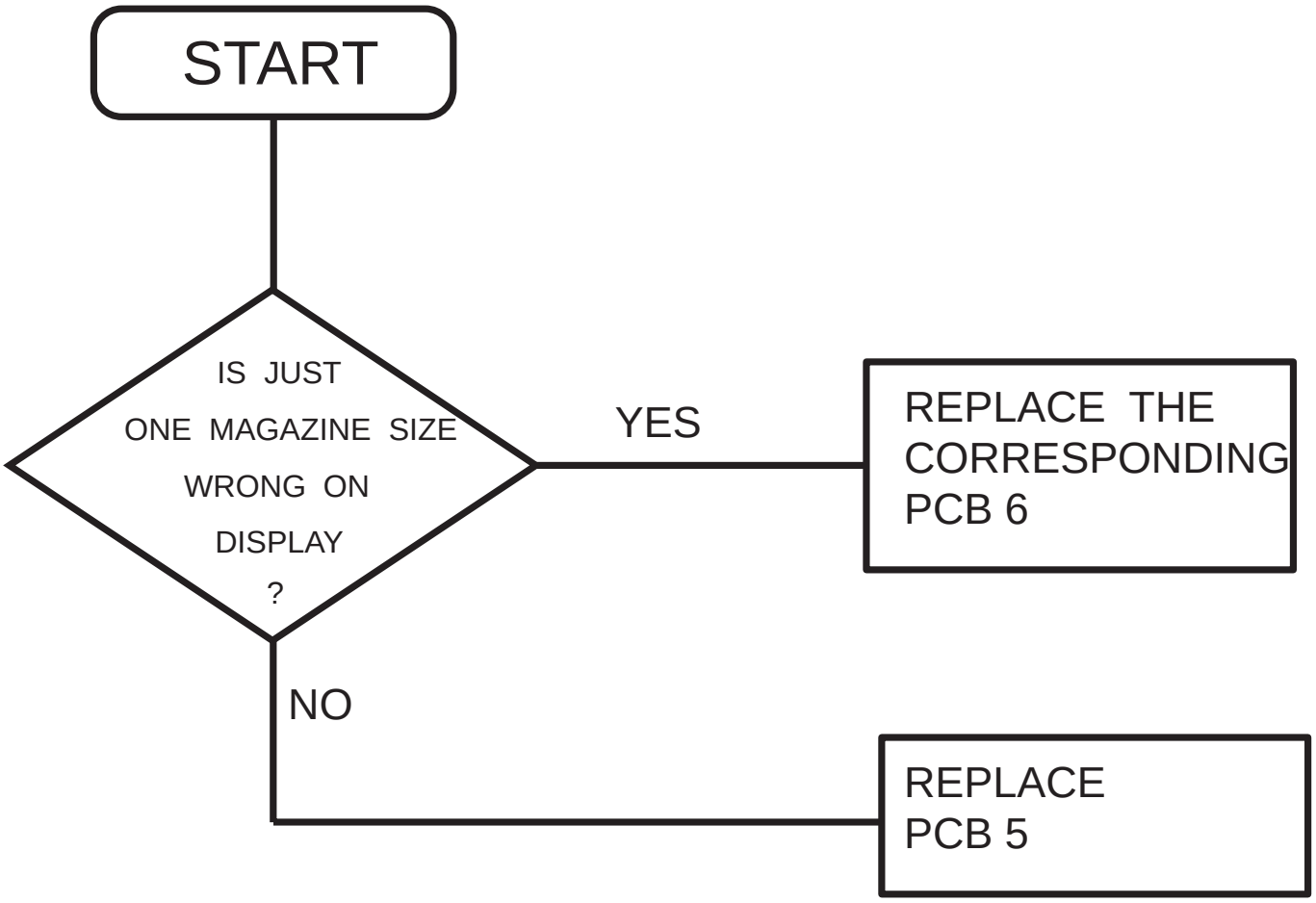


figure 6-14

OPEN MAGAZINE

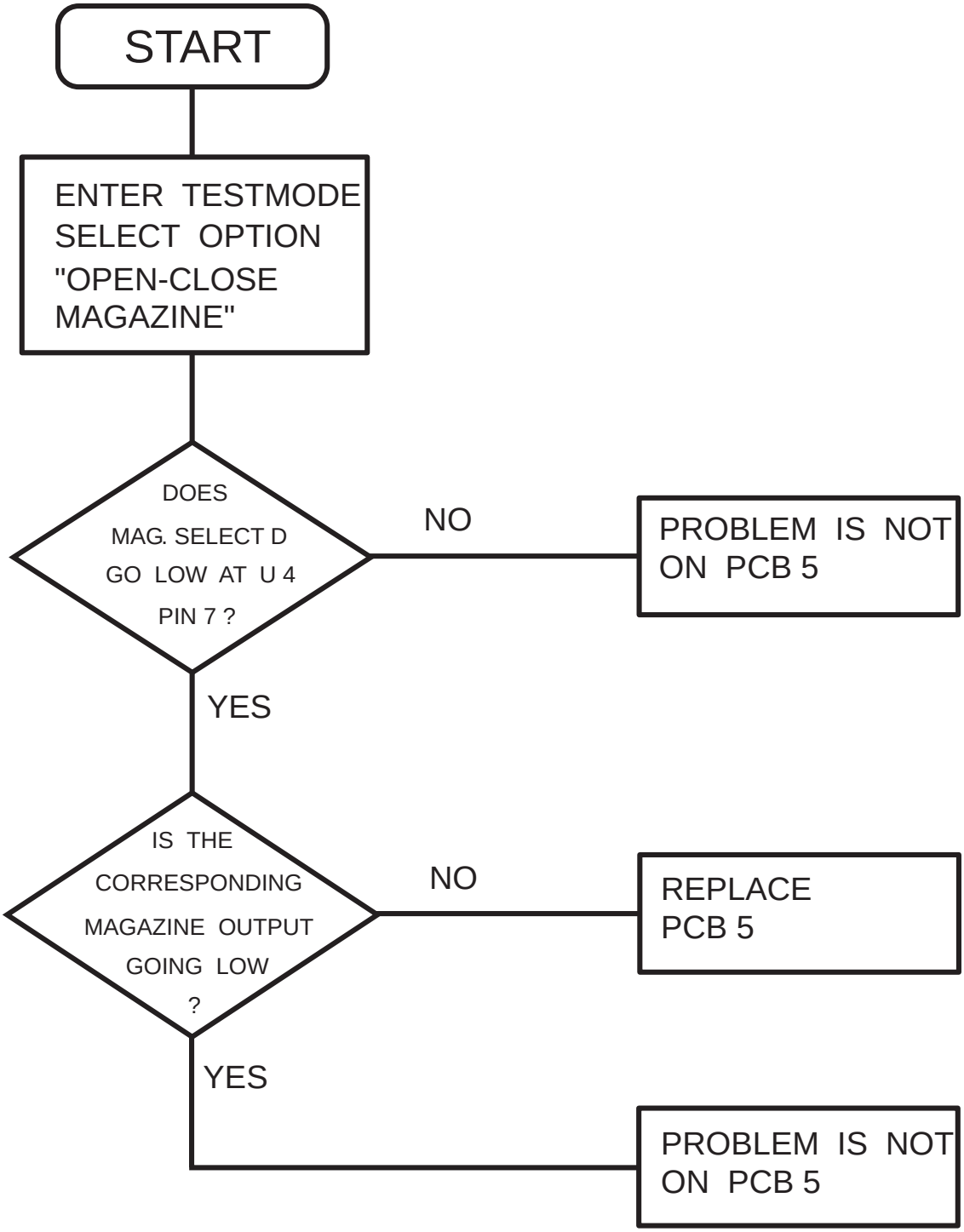


figure 6-15

FILM POCKET PCB A7 / A11

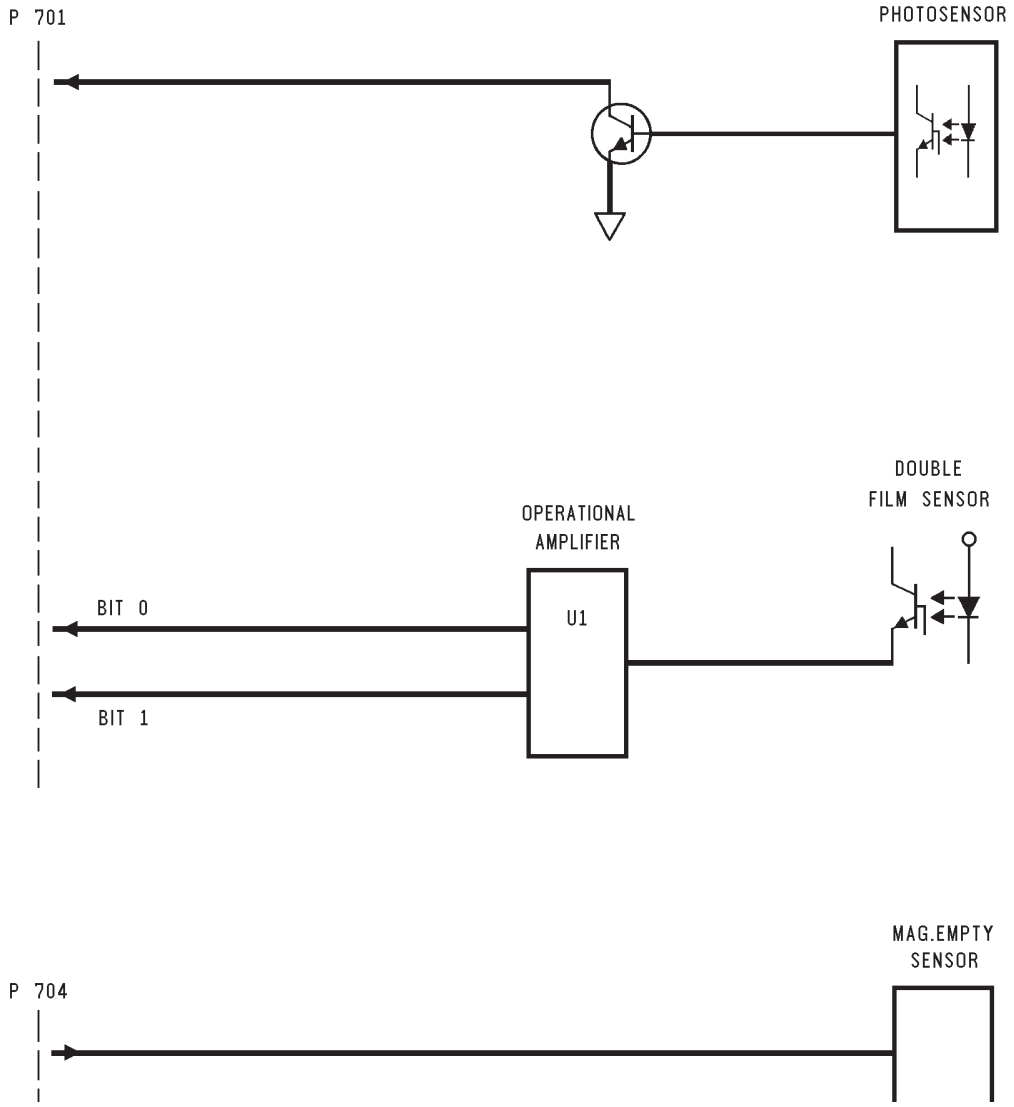


figure 6-16

SENSORS MSI,TP AND TP1

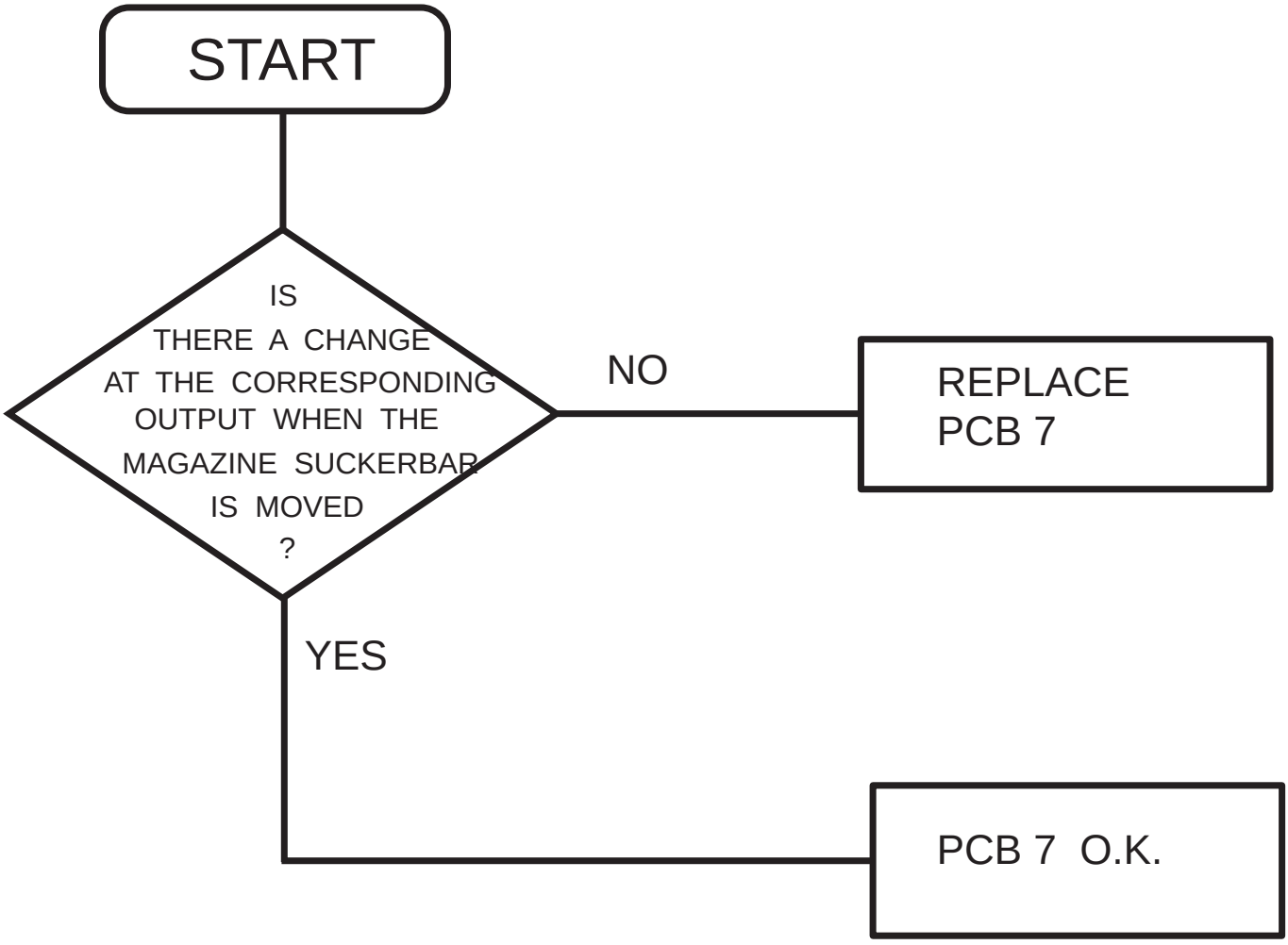


figure 6-17

SENSORS MFP,MAE (PCB A11) AND RP

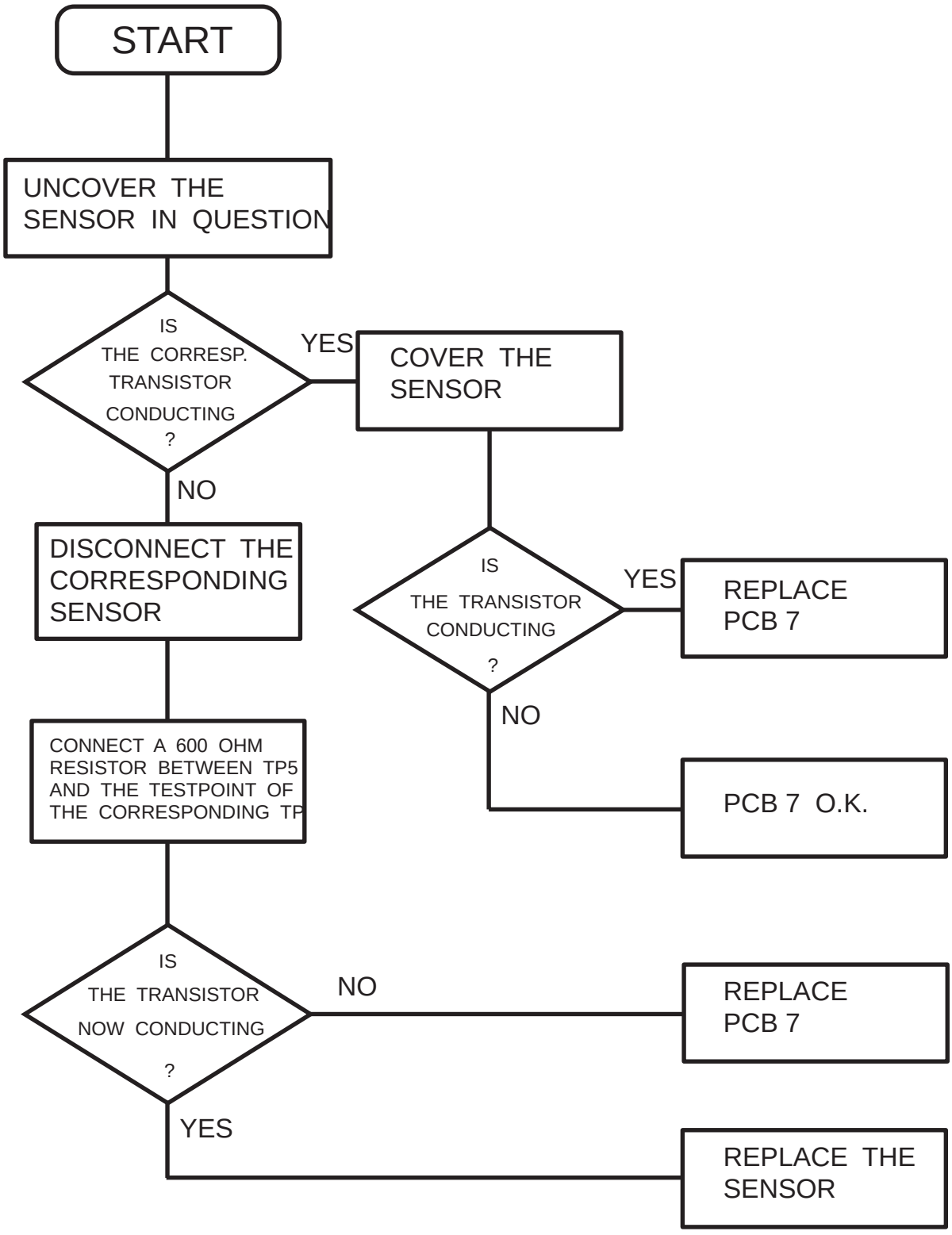


figure 6-18

INTERFACE PCB A9

If the function of this PCB is in doubt and if it is not possible to do the SENSOR ADJUSTMENT, replace it.

PCB A10

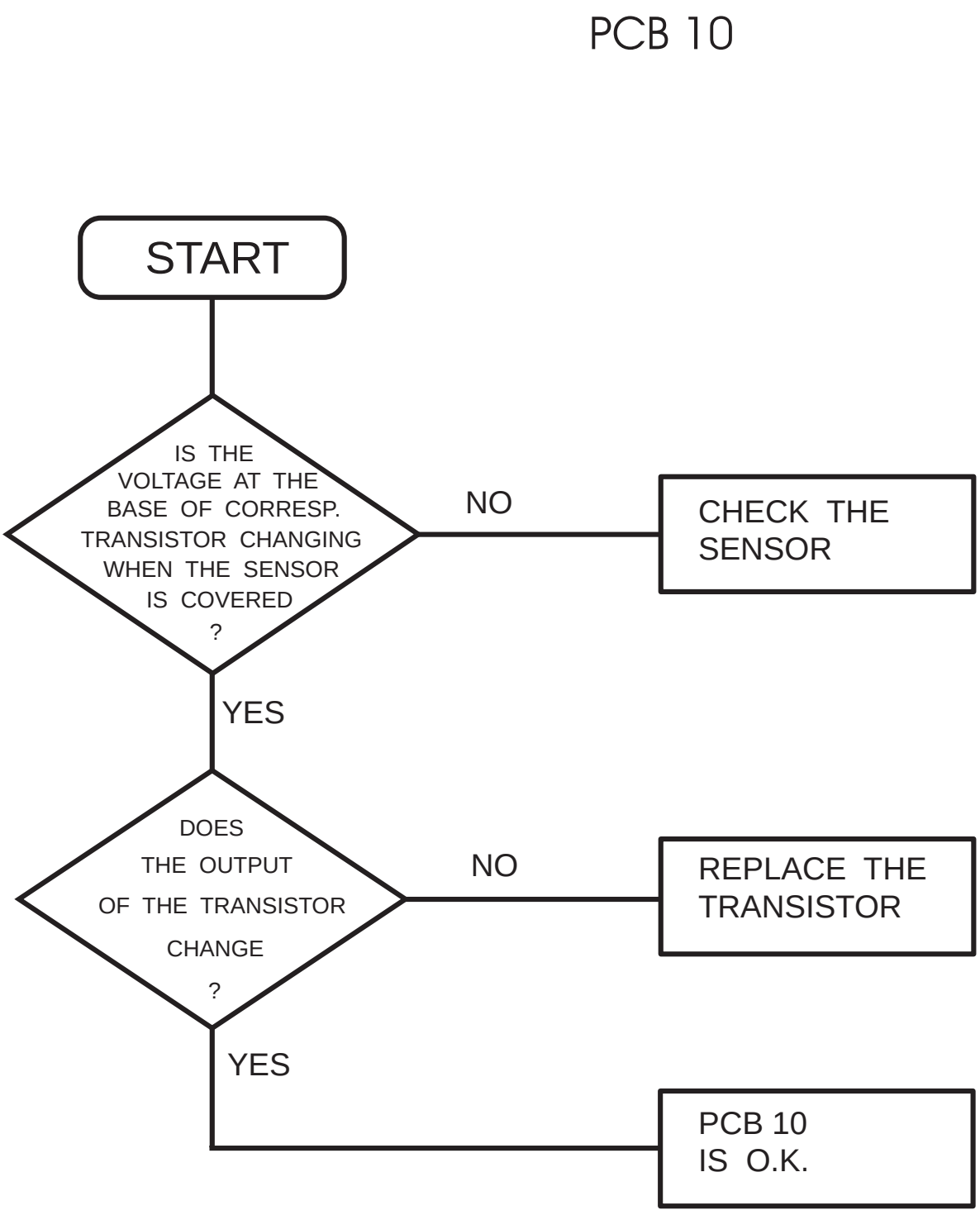


figure 6-19

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